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THE
STABLE MANUAL
AND
HORSE DOCTOR

A Complete Practical Guide in

*HORSE BUYING
MANAGEMENT*

*RIDING
DRIVING*

FEEDING

SHOEING

CONDITIONING

BREEDING

TESTING

DOCTORING

VICE-REMEDYING

ETC., ETC.

BY

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Author of

"Aspects of Country and Animal Life," etc.

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P R E F A C E

FEW domesticated animals have been so much concerned with the interests and enjoyments of mankind as the horse. It may be said, indeed, that no animal has been more usefully associated with the human race, as its services have been required at some stage or other of almost every great undertaking that man has been engaged in, whether concerned with the arts of peace or war. Also its aid is alike valuable to the poor as to the rich, all grades of society having requisitioned its assistance in the affairs of life.

In such circumstances surely it is only just that mankind should carefully study the characteristics of an animal that he is so much indebted to. The horse is an animal with many phases of disposition and character; but in far too many instances its master is apt to allow his mind simply to dwell on one aspect only, namely, its great strength, forgetting all the time that the animal is liable to many ailments and weaknesses. Also forgetting that when it gets fair play, so to speak, it generally is a noble animal, highly endowed with many of the best attributes, such as gratitude for kindnesses, a strong desire to excel, extreme sensitiveness to harsh and unjust treatment, a high spirit that overcomes obstacles, and many other beautiful features of character.

With regard to these features of temperament referred to, and many others, for the horse is as varied in character as its master.

Although the brain of the animal is remarkably small, the horse manifests, in quite a sufficient degree, the sagacity which fits it for its condition. It is cheered by the voice of its master, and responds readily to it. Its memory is peculiarly tenacious with regard to localities, remembering a road it has once travelled for a long period. Another peculiar feature is its great fondness for caresses, and high susceptibility of attachment. In this latter respect, for instance, should the master of the desert horse fall from his saddle, the noble animal will stand by him till he rises, and will neigh for assistance. In many ways a horse will show the pleasure it feels in the presence of those who treat it with kindness. Sometimes, also, it forms quite a strong attachment to other animals which may have remained with it in its stall and cheered its solitude. For instance, the Godolphin Barb, the father of the English race-horse, so to speak, formed an attachment with a cat, which used to sit upon its back when in the stable, and nestle close to it when it lay down. Many other such instances of affection could be narrated.

As the horse is susceptible of kindness, so is it resentful of wrongs. Even foals that have been cruelly treated have been repeatedly known to remember the individual that wronged them, and when full grown have sometimes tried to avenge the wrong. Even harsh language used to a horse in the stall will cause its pulse to rise many beats in a minute. Highly susceptible as the horse is both to kindness and unkindness, it is no less open to feelings of pride and rivalry. In processions and triumphal displays it distinctly manifests the pleasure which it feels in the gay trappings and glittering caparisons. The element of rivalry also, to a very special degree, permeates the disposition of the horse. Everyone has observed on the racecourse the ardour of the rival horses, the impatience with which they wait the moment

of starting, and the spirit with which they press onward in the contest of speed. Examples have even been given of horses deprived of their riders still pursuing the course with the keenest ardour and come in conquerors. The animal, indeed, seems to share strongly the feelings of its master in many things, and enters with joy into his pursuits. In the hunting field, for instance, how often has it been observed that fire lights up its eye, and with what eagerness it pricks up its ears and listens to the voice of the pack, and the ardour with which it joins in the sport, in pursuit of which, surmounting all objects opposed to it.

The horse is not more remarkable for the grace and nobleness of its form, for its strength, agility, and swiftness, for its boldness and spirit, than for the docility with which it resigns its vast powers to the service of mankind. The subjugation of the noble animal is complete. It is not, however, the degradation of unwilling bondage, but the instinctive surrender of physical powers for the purposes for which they were given. If we can read design at all in the functions of animal economy, we must believe that the horse has been formed for the service of mankind, and has the faculties assigned to it which are fitted for that end. Its vast strength and immense powers of rapid progression would avail us nothing were it not endowed at the same time with a temperament which causes it to submit its actions to the control of a superior wisdom. Likewise Nature has not formed this powerful creature to shun the control of man, as is the case of many other animals, but has linked it by its natural wants and instincts to our society. It is only when under human guidance that its most useful faculties are exercised, and its full maturity of form and strength attained. The natural state of the horse, it may be said, is not that of freedom but of domestication.

On the other hand, seeing that the servant is so faithful, useful,

and willing, surely the master should strive to cultivate towards it a spirit of generosity, trying more and more to understand its temperament, and endeavouring to get its services by persuasion rather than by cruel and unfeeling compulsion. The moral qualities of the horse, as already observed, are not unlike those of its master, namely, they are many-sided, and if dealt with in the right and wise way, especially early in life, will most probably develop in right and desirable directions. It is hoped that the present volume will be thoroughly useful, and will aid in the directions indicated.

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THE
STABLE MANUAL
AND
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INTRODUCTION

It has been impossible to ascertain with certainty which country was the original home of the horse. The subject, however, is an interesting one, and among specialists may very properly become a theme of investigation and argument. All such matters, however, are outside the scope of a volume such as the present, the object of which is of a purely practical and popular nature. Though not known with any degree of certainty which people first trained the horse, it appears most probable that it was subjugated in Central Asia from an ante-historic period, whence the knowledge of his usefulness radiated to China and India. Another early region, perhaps, of almost equal antiquity in the training of the horse, was Egypt and the adjacent countries. That systematic attention was there paid to the breeding of these animals, abundant historical and sculptured remains testify. On the other hand, in one or other of the countries of Europe, the bridle, the true saddle, and probably the horse-shoe were invented.

Next to the Egyptians, the Assyrians and Medes became the most celebrated horsemen of the ancient world. These people are often mentioned by the Jewish writers for the beauty of their horses and their skill as horsemen ; and for

the splendour of their equestrian trappings. They were at a later period imitated by the Persians, and immense droves of these animals were reared in the plains of Assyria and Persia. One author speaks of 150,000 horses feeding on one vast plain near the Caspian Gates. The Nysæan horses used by the Kings of Persia are declared to have been the finest in the world—a pre-eminence apparently claimed by every nation that ever possessed a horse; and we may also add by very many individuals who have owned one.

Very much could also be said about the horse in Greece, as also among the Romans. Among the latter people the knowledge of the horse became more accurate, and a number of the Roman writers on rural affairs introduce notices of the various breeds, as also of the diseases of the horse and their remedies. During the period that the Roman emperors were busied with foreign wars, and maintaining a numerous cavalry, professional *veterinari* were appointed to the several legions, and the horse and his diseases were systematically studied. Among the many references to the horse in Roman literature, one of the most interesting to Englishmen must be Cæsar's description of the horse of Britain, and of its use in connection with war-chariots by the inhabitants of the British Isles. These British horses, though small of stature, were much prized for their spirit and powers of endurance, and for a considerable time became in request in various parts of Europe. In Great Britain the year 1112 is important in the equestrian annals of the country, as witnessing the first introduction into the country of the African horse—one in England and one in Scotland. Both these animals were true Barbs from Morocco, procured doubtless through the agency of Jew-dealers. There is no breed which has exercised so great an influence upon the stock of these islands as the Barb, and none more deserving of kindness for the admirable qualities they possess.

A very interesting feature in connection with the horse is the extraordinary variety in the matter of breed, size, quality, use, and training we find throughout the countries of the world. In these respects, we find every country having features of its own, and more or less different from those of other countries. In Europe, we find say France, Germany, Hungary, Norway, Russia, and other countries, all somewhat differing from each other. The

same rule applies to the various countries of Asia, as well as in North and South America. Of all foreign horses, however, as already mentioned, none, whatever their estimable qualities, may be compared with the Barb in interest to the people of the British Isles, as it is to that original breed that we are indebted to the improvement of our own coarser horse. Barbary may be considered as comprising all North Africa, from Egypt westward. Here was found that illustrious breed in question, and which figured as the ancestor of our thoroughbreds. There have been many importations of Barbs into this country, beginning, as previously mentioned, in the year 1112, but the most important has been that of the Godolphin Barb, which began its career as a sire in the year 1731.

The horse is much affected in character and form by the agencies of food and climate, and it may be by other causes unknown to us. It sustains the temperature of the most burning regions. But there is a degree of cold at which it cannot exist; and as it approaches to this limit, its temperament and external conformation is affected. In Iceland, for instance, at the arctic circle, it has become a dwarf. In Lapland, at latitude 65°, it has given place to the rein-deer, and in other northern regions it has given place to the dog. An interesting fact in connection with this intelligent animal and the snowy regions, is, that if turned out in the open, on snowy ground, even though for the first time in its life, it will scrape the snow from the ground in search of food—a thing that oxen and many other animals seem not to have the intelligence to do. As the horse approaches the limit of its natural habitat, it loses much of the fiery spirit and swiftness which it possesses in more genial climes. It may be hardy, sagacious, and enduring; but it generally needs the whip and the spur, and is rarely roused to continued action by its own natural energy and love of motion.

The nature and abundance of its food, too, greatly affect its character and form. A country of heaths and innutritious herbs will not produce a horse so large and strong as one of plentiful herbage. The horse of the mountains will be smaller than that of the plains, the horse of the sandy desert than that of the watered valley. By a combination of these, and, it may be, of other less apparent agencies, the horse, like other creatures formed for the

companionship of man, becomes suited to the conditions under which it is called to exist. In the mountains of the colder countries, it is small, hardy, short, and muscular in its limbs, and covered with abundant hair. Such is the little horse of Norway and other mountainous districts in the North of Europe. In more southern countries of abundant herbage, it becomes enlarged in form, and fitted for greater exercise of physical strength, with a diminution, in ordinary circumstances, of the powers of speed. When, on the other hand, it passes into countries, where from the heat of the climate, its natural food is burned up for part of the year, it becomes of smaller bulk and suited to subsist on scantier food. Thus the horses of the South of Europe are of lighter form, and more easily nourished than those of England and other countries where grasses are abundant, and this change of character still more appears when we pass into Africa or the sandy deserts of Asia. There the light and agile horse of the desert shows itself to be adapted to the scantier nourishment on which it must subsist. The heavy horse of England and the plains of Germany could no more subsist on the herbs of the sands of Tripoli than on the heaths of Lapland. It would perish in such circumstances, did not Nature provide the remedy, by adapting the animal to its condition.

With these few remarks we now proceed to give a short account of the British horse of the present day, leaving out, however, the subject of the race-horse, which does not come within the scope of these pages.

CHAPTER I

THE BRITISH HORSE—PONIES—THE DRAUGHT HORSE—THE COACH HORSE—THE HACKNEY

I.—Galloway, Exmoor, Dartmoor, Shetland, Highland, and English Ponies.

THE name galloway is said to be derived from a handsome, hardy, and much-prized breed of horses, indigenous to the South of Scotland, on the shores of the Solway Firth: they have now, however, disappeared from the place of



THE GODOLPHIN BARB.
Ancestor of the most celebrated British Race Horses.

their origin, the agriculturists of the district having sought to breed an animal of larger stature, better fitted for draught purposes, such as the Clydesdale horse. There is a tradition, by no means warranted by physiology or probability, that the original galloway was descended from a cross with a horse escaped from the wreck of a ship of the Spanish Armada, cast away on the neighbouring coast.

The original galloway was between thirteen and fourteen hands in height, of a bright brown or bay, with a neat head, black legs, peculiarly deep and clean. It had a remarkable sure-footedness and stoutness, with a fair amount of speed. Dr. Anderson thus describes the breed:—

“There was once a breed of small elegant horses in Scotland, similar to those of Iceland and Sweden, and which were known by the name of galloways; the best of which sometimes reached the height of fourteen hands and a half. One of this description I possessed, it having been bought for my use when a boy. In point of elegance of shape, it was a perfect picture, and its disposition was gentle and compliant; it moved almost with a wish, and never tired. I rode this little creature for twenty-five years; and twice in that time rode a hundred and fifty miles, without stopping, except to bait, and that not above an hour at a time. It came in at the last stage with as much ease and alacrity as it travelled the first. I could have undertaken to have performed on this animal, when it was in its prime, sixty miles a day for a twelvemonth running, without any extraordinary exertion.”

A great many ponies, of little value, used to be reared in Lincolnshire, in the neighbourhood of Boston; but the breed has been neglected for some years, and the enclosure of the fens will render it extinct.

The *Exmoor ponies*, although generally ugly enough, are hardy and useful. A well-known sportsman says that he rode one of them half-a-dozen miles, and never felt such power and action in so small a compass before. To show his accomplishments, he was turned over a gate at least eight inches higher than his back; and his owner, who rode fourteen stone, travelled on him from Bristol to South Molton, eighty-six miles, beating the coach which ran the same road.

There is on Dartmoor a race of ponies much in request

in that vicinity, being sure-footed, and hardy, and admirably calculated to get over the rough roads and dreary wilds of that mountainous district. The Dartmoor pony is larger than the Exmoor, and, if possible, uglier. He exists there almost in a state of nature. The late Captain Colgrave, of Dartmoor prison, had a great desire to possess one of them of somewhat superior figure to its fellows, and having several men to assist him, they separated it from the herd. They drove it on some rocks by the side of a tor (an abrupt pointed hill); a man followed on horseback, while the Captain stood below watching the chase. The little animal, being driven into a corner, leaped completely over the man and horse, and escaped.

The horses in the southern and western districts of Devonshire, called "pack-horses," from their former use, are merely a larger variety of the Exmoor or Dartmoor pony.

There is one description of pony, however, truly and unmistakably aboriginal, in the northern parts of Britain—we mean the unmistakable little *Sheltie*, or *Shetland pony*; an animal which loses every characteristic if an attempt or accident should lead to an increase of their general size. The strength of these little animals almost surpasses belief. Seven, eight, nine, and at the outside ten hands high, they are full of vigour, strength, and beauty, of a peculiar stamp. There are some which an able man could lift up in his arms; yet will carry him eight or ten miles, and as many back. Summer or winter, they never come into a house, but run upon the mountains, in some places like flocks; and if at any time in winter they are straitened for food, they will come from the hills, when the ebb is in the sea, and eat the sea-weed (as likewise do the sheep). Winter storms and scarcity of food brings them so low that they do not recover their strength till about the middle of June, when they are at their best. They will live to a considerable age, as twenty-six, twenty-eight, or thirty years. They last to be good for riding at twenty-four; especially if they are not put to work until they are four years old. Those of a black colour are judged the most durable. The pied often prove not so good. They have been more numerous than they are now.

The Highland pony is far inferior to the galloway, and is not pleasant to ride, except in the canter. His habits

make him hardy, for he is rarely housed, summer or winter. The Rev. Mr. Hall says that when these animals come to a boggy piece of ground, they first put their nose to it, and then pat on it in a peculiar way with one of their fore-feet, and from the sound and feel of the ground they know whether it will bear them. They do the same with ice, and determine in a minute whether they will proceed.

As to the English pony, almost every district has its breed, more or less commingled; and the variety would appear to be most suitable to the circumstances of pasturage and soil. Owing, however, to the average large stature of the English horse, any thing under thirteen hands has, in horseman's phrase, come to be called "a pony." Many of our best trotters have passed under this name.

II.—The Draught Horse.

Up to within these few years our principal employers of draught horses in the metropolis aimed almost exclusively at the procuring of those grand, stately, and immense animals which judicious crossing with the Flemish and old Suffolk Punch so often produced. Of late, however, the immense demand for a horse of higher activity and hardiness, for the service of the railway van, has given the waggon horse a stamp more approaching to the Cleveland, or the "machiner"—a smart trot, as well as a sheer-strength pull, being a desideratum. When the old "sumpter," or carrier's horse, was used in England, for the conveyance of loads in packs or panniers, some of the Yorkshire sumpter horses have been known to carry 700 lbs. weight sixty miles in the day, and to repeat this journey four times a week, while mill horses have carried 910 lbs. for shorter distances. This is the stamp of animal required by the Baxendales, Chaplins, and Pickfords; another sort is yet the pride of our great brewers, distillers, and London waggon owners.

A prevalent error of strangers is that these magnificent horses are merely meant as an advertisement of the firm to which they belong. The large and opulent brewer has less occasion for this kind of publicity than any other trader. His customers are compelled to come to him: a chance sale is a *rara avis*. He has these horses because

extraordinary exertion is sometimes required, and he can command it when necessary. At the same time, they are too valuable to be uselessly worn out, and pay better in the long run for the attention bestowed upon them. This has led many into the error of supposing these splendid animals cannot do the work of such as, from want of proper points to command the higher prices, get into the more laborious employments; and you will hear the owners of these inferior horses constantly remarking on one of these beautiful teams, as not only the pride of the drayman, who beacons them to him like old acquaintances, and which they answer with the sagacity of bipeds, but they are also the pride and admiration of all Englishmen, and the astonishment of most foreigners.

They were full of astonishment, and could not tell which made the greatest impression, their extreme beauty, vast size, sagacity, or docility, amounting beyond parallel. One gentleman remarked, "I have been over most of the globe, I have seen many of its wonders, but the greatest I ever saw was in London. I saw a brewer's team lowering some butts of beer. The horse that performed this office, without any signal, raised the butts, and returned and lowered the rope; not a word or sign escaped the man at the top of the hole, who only waited to perform his part as methodically as his four-footed mate did his. Two others were sometimes playing at intervals in apparent converse. The cellaring finished, the horse took his place by the team; the other loose horse, that had been going wherever he pleased, also came, and was hooked on. The man adjusted his dress, then walked away; the team followed. Not one word was passed, not even a motion of the whip, or any other intimation of what was to be done next."

He added, he had never seen the same number of men work in such unison with the various changes; it was wonderful, and if it was not reason, he thought the greater portion of mankind had better give up some part of their reason to learn sagacity from a dray-horse. He continued: "I followed some distance to see how it was that a man who seemed as if he could be crushed at any moment by these monsters, had such control over them. I observed he never touched them. Between carriages where there hardly seemed room enough to squeeze through, he went without touching;

and this, too, by merely waving a bit of whip-cord on the end of a long black rod." He finished with, "I was quite astounded; it was truly wonderful, and I always recollect the sight with pleasure, and can hardly prevail upon myself that it was not some necromancer waving an enchanted rod."

This digression dismissed, we will proceed to show that the observation that brewers' horses cannot do more laborious kinds of work, particularly that of town carmen, is a mistake. There is not often an opportunity of proving the fact, the greater part of the brewers being too liberal to their old servants to part with them when worn out: most of them, therefore, have them destroyed when, from old age or accident, they are incapacitated from performing their work with moderate comfort. Some wealthy gentlemen, aye, and ladies too, may take a leaf in this respect, at least, out of the brewers' book, when many a favourite hunter, charger, ladies' pad, hack, and even racer, will be saved the torture of dragging street-cabs and costermongers' carts with aching limbs, crippled feet, galled shoulders and back, for the sake of putting into the pocket of the seller not perhaps one-half of what the old dray-horse would fetch.

There are a few exceptions of brewers selling their horses, and we feel confident all those who have bought them have found them work better than the ordinary horses at the same age: we have known many. One was sold out from being supposed to be lame; he turned out sound. Three tons and a half, including his cart, became his ordinary load, and with this he went all over London and the neighbourhood, and never had, or required, any assistance, not even over the bridges, or up hills. He certainly was a remarkably fine horse, and kept up his fat till he died, some years after leaving the brewhouse.

The heavy black horse, a favourite with the coal-merchants, is bred chiefly in the midland counties, from the fens of Lincolnshire to Staffordshire. Many are bought up by the Surrey and Berkshire farmers at two years old; and, being worked moderately until they are four, earning their keep all the while, they are then sent to the London market, and sold at a profit of ten or twelve per cent.

It would not answer the breeder's purpose to keep them until they are fit for town work. He has plenty of fillies

and mares on his farm for every purpose that he can require; he therefore sells them to a person nearer to the metropolis, by whom they are gradually trained and prepared. The traveller has probably wondered to see four of these enormous animals in a line before a plough, on no very heavy soil, and where two lighter horses would have been quite sufficient. The farmer is training them for their future destiny; and he does right in not requiring the exertion of all their strength; for their bones are not yet perfectly formed, nor their joints knit, and were he to urge them too severely, he would probably injure and deform them. By the gentle and constant exercise of the plough, he is preparing them for that continued and equable pull at the collar which is afterwards so necessary.

The true Suffolk Punch, which did much for our best short-legged dray-horses, is not found now in its purity. It stood from fifteen to sixteen hands high, of a sorrel colour; was large-headed, low-shouldered, and thick on the withers; deep and round chested, long backed, high in the croup, large and strong in the quarters, full in the flanks, round in the legs, and short in the pasterns. It was the very horse to throw his whole weight into the collar, with sufficient activity to do it effectually, and hardihood to stand a long day's work.

The present breed possesses many of the peculiarities and good qualities of its ancestors. It is more or less inclined to a sorrel colour; it is a taller horse, higher and finer in the shoulders, and is a cross with the Yorkshire half or three-fourths bred.

The excellence, and a rare one, of the old Suffolk—the new breed has not quite lost it—consisted in nimbleness of action, and the honesty and continuance with which he would exert himself at a dead pull. Many a good draught-horse knows well what he can effect; and, after he has attempted it and failed, no torture of the whip will induce him to strain his powers beyond their natural extent. The Suffolk, however, would tug at a dead pull until he dropped. It was beautiful to see a team of true Suffolks, at a signal from the driver, and without the whip, down on their knees in a moment, and drag everything before them. The immense power of the Suffolk is accounted for by the low position of the shoulder, which enables him to throw so much of his weight into the collar.

Although the Punch is not what he was, and the Suffolk and Norfolk farmer can no longer boast of ploughing more land in a day than anyone else, this is undoubtedly a valuable breed.

The Clydesdale is a good kind of draught-horse, and particularly for farming business and in a hilly country. It derives its name from the district on the Clyde, in Scotland, where it is principally bred. The Clydesdale horse owes its origin to one of the Dukes of Hamilton, who crossed some of the best Lanark mares with stallions that he had brought from Flanders. The Clydesdale is larger than the Suffolk, and has a better head, a longer neck, a lighter carcass, and deeper legs; he is strong, hardy, pulling true, and rarely active. The southern parts of Scotland are principally from this district; and many Clydesdales, not only for agricultural purposes, but for the coach and the saddle, find their way to the central and even southern counties of England. Dealers from almost every part of the United Kingdom attend the markets of Glasgow and Rutherglen.

The Clydesdale horse, as it is now bred, is usually sixteen hands high. The prevailing colour is black, but the brown or bay is common, and is continually gaining upon the other, and the grey is not infrequently produced. They are longer in the body than the English black horse, and less weighty, compact, and muscular; but they step out more freely, and have a more useful action for ordinary labour. They draw steadily, and are usually free from vice. The long stride, characteristic of the breed, is partly the result of conformation, and partly of habit and training; but, however produced, it adds greatly to the usefulness of the horse, both on the road and in the fields. No such loads are known to be drawn, at the same pace, by any horses in the kingdom, as in the single-horse carts of carriers and others in the west of Scotland.

III.—The Cleveland Bay—The Coach Horse.

Though horses are bred in every county of England, Yorkshire has the credit of producing the greater number of good ones. It has, or rather had, in the old "Cleveland bays," a particular race, combining peculiarity of form, a certain cast of countenance, and high qualities of utility.

This powerful and active breed have, by many writers, been considered as owing their valuable properties to early crosses with the race-horse of those times; it is probable that those qualities marked the indigenous Yorkshire horse. The large London carriage horses are of this stock, though the demand for a harness horse of lofty size has much decreased; other qualities, which are to be had combined with more grace, lighter action, and less of the "farm" horse stamp, being now in request. A century ago, however, the carriage horse had not even the form of the Cleveland—he was a round-barrelled, hollow-backed, clod-shouldered, thick-legged brute, with long tail, full mane, and hairy fetlocks, something between a hearse horse and a dray-horse, full of flesh, pride and pawing, and capable of six miles an hour for three hours three times a week—not that he ever got half of it. The later coach-horse, though too large, was a great improvement on this Netherlandish animal. The points of a good coach-horse are: depth in the body, good bone under the knee, moderately long pasterns, and sound, tough feet, well open at the bars.

It is the progressive mixture of the blood of horses of higher breeding with those of the common race, that has produced the variety of coach-horse usually termed the Cleveland bay, so called from its colour, and the fertile district of that name in the North Riding of Yorkshire, on the banks of the Tees. About the middle of the last century, this district became known for the breeding of a superior class of powerful horses, which, with the gradual disuse of the heavy old coach-horse, became in request for coaches, chariots, and similar carriages. The breed, however, is not confined to Cleveland, but is cultivated through all the great breeding district of this part of England. It has been formed by the progressive mixture of the blood of the race-horse with the original breeds of the country. To rear this class of horses, the same principles of breeding should be applied as to the rearing of the race-horse himself. A class of mares, as well as stallions, should also be used, having the properties sought for. The district of Cleveland owes its superiority in the production of this beautiful race of horses to the possession of a definite breed, formed not by accidental mixture, but by continued cultivation.

Although the Cleveland bay appears to unite the blood

of the finer with that of the larger horses of the country, to combine action with strength, yet many have sought a further infusion of blood nearer to the race-horse. They are accordingly crossed by hunters or thoroughbred horses, and thus another variety of coach-horse is produced, of lighter form and higher breeding; and many of the superior Cleveland curricie and four-in-hand horses are now nearly thoroughbred. The bay colour is in the most general estimation, but the grey are not infrequently used.

Such is unquestionably the "Cleveland" horse of our day; from a thoroughbred of moderate stature, and a Cleveland mare three-quarters blood, we obtain a horse fit for the small pair-horse brougham, the curricie-phaeton, or the four-in-hand.

A pleasant and most popular writer, who adopts the *nom de plume* of "Harry Hieover," thus agreeably contrasts the modern and antique carriage-horse:—

"The great alteration in the form and breeding of the carriage-horse has partly arisen from the alteration of the vehicle he draws, but still more from the improvement in the paving of the streets and the state of the roads round the metropolis. The heavy, old-fashioned machine that was built to suit the pavement over which the royal Hal and his fat friend were jolted to Eastcheap, became no longer necessary when, if a hole was found in a street, the paviors were set instantly to work; and when the two miles and a half from St. Paul's to Hyde Park Corner, barring stoppages, became a work of fifteen minutes instead of a long mortal hour, the heavy old coach-horse found the pace so unpleasant—indeed, impossible to him—that it became necessary to infuse some quicker-flowing blood into his veins; yet perhaps this necessary change, though it improved speed, would have made the more high-bred animal refuse to fetch a heavy load out of a slough or hole that let the vehicle in axle-deep. Each was fitted for a different purpose, and each had its distinct merit.

Doubtless the old coach-horse was a little better bred than the light cart-horse; and I should think it more than probable that Lincolnshire and Suffolk mainly contributed to the early supply of coach-horses, for in those days the Yorkshire horse was the hunter, and would have been thought too light for harness-work. When roads got

better, and gentlemen became charioteers, with their phaetons-and-four, and when this was followed by the barouche, then Cleveland sent up its stock for carriage-horses, and they began to get those higher bred.

Partly, perhaps, to favour the kind of horse that had become in vogue, but much more in consequence of good roads, small carriages became in vogue also. All sorts of vehicles, with all sorts of names, shapes, sizes, and construction, were and are seen in the streets; and all the ingenuity of man was called forth to produce something new. But the ultimatum of all this ingenuity appears to have been to enable a family, constituting in itself a host, to avail themselves of the convenience of one carriage and one horse. The large, old-fashioned family coach is no longer seen. This was a capacious, lumbering-looking vehicle, it must be allowed; six inside, two footmen and coachman, made nine in number. This was thought enough for two large coach horses; but now we seldom see a galloway, or, at all events, a small horse, without a machine built for four somewhere, and two on the dicky. So horses have not all the best of the change of carriage; but, praised be M'Adam! he brings things through; for the present landau pilentum is not much lighter than the coach of seventy or eighty years since. It looks so from the absence of bulk of wood and the substitution of iron; but it is the roads, not the carriages, that favour horses. Bring back the old roads, and you must get back the old coach and coach horse; but I trust we shall never see either again."

IV.—The Hackney.

A capital judge in equine matters has well said that a perfect hack or roadster is the rarest phenomenon in horse-flesh. To judge the just properties, we must have an accurate perception of the end for which the animal is designed, for according to the end the proportions vary. Thus, there is one set of proportions for the racer, another for the hunter, another for the hackney, another for the coach horse, and another for the cart horse; and as each of these merges into the other's qualities, so is it inferior for its special objects. Each, too, possesses its own style of beauty.

Why should that common-place animal, as he appears to the uninitiated, the roadster, be more difficult to be met with in perfection than even the hunter and racer ?

There are many reasons for this. The price of the hack, or the horse-of-all-work, is so low that he who has a good one will not part with him ; and it is by mere accident that he can be obtained. There are also several faults that can be overlooked in the hunter, but which the road horse must not have. The hunter may start, may be awkward in his walk, or even his trot, he may have thrushes or corns, but if he can go a good slapping pace, and has wind and bottom, we can put up with him or prize him. But the hack, if he be worth having, must have good fore-legs and good hinder ones, too ; he must be sound on his feet, even-tempered, no starter, quiet in whatever situation he may be placed, not heavy in hand, and never disposed to tumble down.

The hack, like the hunter of the present day, is always a horse with some portion of racing blood, the whole English race, even to the cart-horse, being more or less imbued, and equally improved by it. Thus our road horses are half, three-parts, seven-eighths, or thoroughbred. The two latter degrees are, in several respects, less fitted for the purpose of travelling the roads than the former : chiefly on account of the tenderness of their legs and feet, their longer stride, and straight-kneed action, not so well adapted to the English road pace, the trot. Nevertheless, well-bred hackneys are elegant and fashionable, and, when good canterers, pleasant to ride ; insomuch that, a certain colonel of the Guards of former days insisted, there was the same difference to be felt in riding a bred hack and one without blood, as between riding in a coach and in a cart. One good property in the thoroughbred road horse is, that he seldom shies, many of them never.

The road horse should have a considerably lofty yet light forehand or crest, a deep and extensive shoulder, well raised at the withers, straight back, with substantial loins and wide fillets, the croup not suddenly drooping, nor the tail set on low. The head should not be thick and fleshy, nor joined abruptly to the neck, but in a gradual and tapering form ; the eye full, clear, and transparent. The fore arms and thighs, with plenty of muscular substance,

should be of reasonable length, but the legs should, at no rate, be long. Much solid flat bone beneath the knee is a great perfection in a hackney; and the feet, standing straight, turning neither in nor outwards, should be of tough, dark, shining horn, the heels wide and open. The saddle-horse's fore-feet should closely approach each other, the wide chest being rather adapted to the collar. Nor need any apprehension be entertained, from this near approximation of the fore feet, of the horse's cutting in the speed, or knocking his pastern joints, since those defects arise almost invariably from the irregular pointing of the toe, inwards or outwards, and for which neither a wide chest, nor the most skilful farriery, has ever yet provided a sufficient remedy. A saddle horse of any description can scarcely go too close before, or too wide behind.

Perhaps the best pedigree for a road horse for general purposes is, that he should be bred from hackney stock on both sides, more particularly for a trotter.

In the hackney, says Blaine, "we look with as much anxiety to his fore parts, as we do to the hinder of the racer or hunter; and as in them the fore parts are rather subordinate to the hinder, so in the hackney, on the contrary, the hind parts may be regarded as of less consequence than the fore; for, though speed is diminished, yet it is subordinate to safety. The head should be small, well placed, and well carried on a neck of due length; the withers high; and the shoulders muscular, but not heavy, and above all, they should be deep and obliquely placed. The fore legs must be perfect throughout, and stand straight and well forward under the horse; and, what in the hunter or racer is of less consequence, is here indispensable, that the elbows should be turned well from the body. The feet also, it is requisite, should be clean, open, and perfect, and the limbs, especially the fore ones, free from all stiffness. The height in the hackney is not so essential as in the racer and hunter; indeed the best hackneys are from 14·3 to 15·1. He should be equally set, without being in the least clumsy; and with such a form, the more blood he shows, short of full-blood, the better."

The action of the hack shall be examined when we treat of the paces of the horse, especially the TROT, and the choice of a horse for saddle.

A hackney is far more valuable for the pleasantness of his paces and his safety, good temper and endurance, than for his speed. We rarely want to go more than eight or ten miles in an hour; and on a journey not more than six or seven. The fast horses, and especially the fast trotters, are not often easy in their paces, and although they may perform very extraordinary feats, are disabled and worthless when the slower horse is in his prime.

CHAPTER II

BUYING A HORSE—EXAMINATION FOR PURCHASE

THE better class of horse-dealers are quite as upright and fair in their dealings as wine merchants, auctioneers, advertising jewellers, and a score of dealers in articles of a "fancy" description. This, many will say, is but poor praise; be it so. It is nearer truth than the senseless outcry about horse-dealers which fills the pages of light-reading periodicals, and points the pencil of the caricaturist. If to-morrow we wanted an animal, such as we shall presently describe, and distrusted our own experience and judgment, we should apply at once to an established dealer, on the same principle as we should to a respectable silversmith, and should not doubt to get fair value in one case as in the other.

It is a gratifying fact, and we speak from observation and experience, that those tricks and dishonesties which used formerly so extensively and constantly to disgrace the repositories, are now of rare occurrence, if not quite gone down into desuetude; although, of course, *caveat emptor* cannot be flung to the winds when one is buying anything, but more especially in such an extremely delicate undertaking as purchasing a horse. The "knock-outs" are now confined to a few of the very needy and characterless cads. All the more respectable members of the trade repudiate the practice as beneath them. Improvement has also given the guinea-hunters the go-by; and here and there only, a crown or half-crown cad is tipped. Respect-

able agents, too, are not the *rara avis* they used to be. To return.

We will suppose you are not over-particular as to colour, and that the venerable saw, "a good horse is never of a bad colour," has its due weight with a sensible man. Grey, chestnut, roan, bay, brown, or black, there are good ones of all. Bay or brown, with black legs and hoofs, are usually most obtainable, and, all other points being equal, most desirable. Greys are handsome, but as they grow older and white, stain themselves so frequently by lying down that much more washing is necessary; add to which, their hoofs are often white, and softer and less dense than those of black-footed horses.

To describe a "good sort" of horse is, perhaps, not a difficult matter. A really good sort of horse cannot well be put quite out of his place; he is capable of all services that can be required of him, with the reservation of the two extremes—racing, or the waggon. Even for these, if he is well bred, he would make a tolerably good fight for the one, and his pluck and courage would, to the extent of his strength and weight, make him a most willing rival of "Gee woa," if the ingratitude and cupidity of man should destine him to such degradation and suffering: by no means an improbable ending of his career, and that often under circumstances at which the humane sportsman revolts.

There can be no doubt but that "a good sort" is a valuable acquisition to any man who wants a horse to perform well any purpose for which such sort is necessary or desirable; but he may not get what performs a particular kind of work in a superior manner notwithstanding; and we may sometimes, and under peculiar circumstances, show our tact and knowledge of horses, by purchasing one for a given purpose, which our judgment may tell us is really of a good sort, even for that purpose, or indeed any other.

A really good sort of horse is fit more or less for any purpose to which we may apply him, and will do that purpose moderately well; but it by no means follows he may be more than moderately good in any of them. A good sort of horse has so often been described by abler pens than ours, that we will not enter into the minutiae of description here.

We are told, and with truth, that a thin, clean, good head, and cheerful eye, are indicative of goodness, and (if we may use the terms in speaking of the horse) indicative also of an amiable and generous temperament and disposition. A head well put on, with a yielding and somewhat arched neck, denotes the head capable of being carried in the right place; and further, we may infer such a horse has a good mouth, it not having been hardened or spoiled by useless endeavours to bring the head in the place we wish it to be. Long oblique shoulders usually betoken freedom of action, so far as the fore parts are concerned. A deep girth and long back ribs show strength, as do good loins; wide hips, freedom of action; long good thighs and large clean hocks, with hind legs well put on, show strong propelling powers.

With these points, we may say a horse has got what indicates goodness of temper, cheerfulness and courage, carrying himself handsomely and pleasantly to the rider or driver, goodness of action, strength, speed, and safety.

Yet, with all these good points, he may only be enabled to perform any of the purposes to which we may put him *moderately* well. In a general way, such an animal cannot be a bad horse; but if we want perfection, or something like it, we must tie ourselves to special rules as to formation, and should show our tact in buying what our judgment must in a general way condemn, if we determine to have something uncommon in a particular way: such as a flyer for racing purposes, a jumper up to fifteen stone for steeple-chase or the hunting field, or an animal for the exclusive purposes of draught—all of which have their special conformations and characteristics.

The most perfect mechanical forms are not always the most speedy or the most powerful: good conformation may give the *power* to perform extraordinary feats of endurance, activity, or strength; but it must never be forgotten that the vigour of motion depends not upon the form alone, but the will to exert its powers. This will, or energy in work, is proportionate to the excitability of that portion of the brain and nervous system which governs the muscles exerted in the desired action. Thus, oftentimes, a plain horse with a willing temper is far superior to a perfectly formed one who has not that virtue. "How can I tell," asks the reader, "anything about all this? I must trust

to the seller." True, but not to the extent you suppose. A close and intelligent examination of the postures, countenance, eye, nostril, ear, movements, and carriage of the animal, will tell you more than you would believe until you try such a thoughtful inspection.

The energetic horse has generally a large eye, is attentive to what is going on about him, fine muzzle, large nostrils, small ears, thin skin, and clean limbs; he rarely carries much flesh; and lastly, it has been frequently observed that many energetic horses have thin manes and tails.

The sluggard has usually a small, sunken eye, in a large, heavy head; the ears are large or sloping, and seldom move; the nostrils are almost always small, muzzle fleshy, ribs flat, belly pendent, and the tail drooping, and not infrequently very full.

A small horse is capable of greater exertion than a large one. The vital principle seems to act with increased activity in small animals; in one it is diffused, and in the other concentrated. Again, like us, some have better constitutions than others; in one, the texture of the organs may be compact, and in another weak and relaxed. Horses with thick skins are more predisposed to attacks of grease and canker. In proportion as the legs are hairy, the skin is thick and spongy, feeble in vital energy, and incapable of bearing changes of temperature.

With these preliminary remarks we will proceed to the

EXAMINATION FOR PURCHASE.

Unless proper precaution is used in the examination of horses for purchase, the law will not protect a man from the consequences of his own neglect; and it has been held that a warranty against apparent defects is bad in law, the purchaser being expected not only to possess ordinary skill, but to exhibit ordinary caution.

A defective horse is dear at any price; yet though the buyer be ever so good a judge, and his inspection ever so minute, he must take some things on trust. A perfect knowledge can only be obtained on trial, which should always be taken if possible, but which is not, under many circumstances, to be had. For instance, some horses, when turned six or seven years old, are subject to a dry, chronic cough, which comes on at uncertain times, perhaps twice

or thrice a day, sometimes after feeding or drinking; or changes of temperature may induce it, when he comes into or goes out of the stable. Occasionally a dose of physic, and in some cases a little attention to his diet, will prevent recurrence of this cough for two or three days, or even weeks, when it will reappear.

With a respectable dealer, after using your eyes and discretion, you had better depend on the warranty and the vendor's character, than, by any unnecessary display of suspicion, offensively question his honesty. Nevertheless—as the trade is taken up by needy gentlemen of good standing in society, and broken-down black-legs of respectable connections, who are ever ready to give a warranty not worth a dump, or satisfaction if you are dissatisfied thereat—if you have reason to suspect the horse, or his master, the directions here laid down will be found useful. Always bear in mind that the observation of one symptom should induce the examiner to follow up the inquiry into those other symptoms which are characteristic of the suspected disease, defect, or unsoundness. We would also recommend, when you have made up your mind that a horse is such as you would wish, to take with you, not as your dictator, but as your adviser and friend, a respectable, qualified vet.; for, depend on't, he must be a wonder of incompetence and of the rarest dishonesty, if his judgment and disinterested advice are not superior to your unaided acumen, and perhaps prejudged decision. The fee is well saved in after satisfaction.

The best time to view a horse is early in the morning, in the stables; as, if there is any stiffness in the joints, or tendency to swelled legs, it will then be most apparent.

The horse should always be examined from a state of rest. If there are any symptoms of his having been previously exercised, such as sweat about his withers, or his legs having been recently washed, it is advisable he should be left in his stall till cool. There is more than one species of lameness, which becomes less apparent after exercise; and where there is a tendency to swelled legs, a smart trot and grooming will fine his legs, and render them clean.

This precautionary measure is more especially to be taken when you suspect your man, for in horse-buying you must expect to deal with gentry who are adepts in the science of imposition. A stable examination is the best for

observing indications of wind-sucking, crib-biting, chronic cough, the state of the respiration, and for discovering vice.

For this purpose, always have a horse shown quietly. When there is much noise and bustle, there is generally something wrong ; and when the animal is agitated, slight lameness will escape the eye. In going to look out for a horse in a dealer's stables, you will no doubt soon attract the notice of an attendant, who will endeavour to put the horses into a fidgety state by his presence, in all probability with a whip in his hand. Object, *in limine*, to this ; your object is to see the animal in a state of repose, and as far from any exciting cause as possible. It may be difficult to take a quiet survey, for the attendant is not always obedient to you, but often will persevere in exciting what you want to see in a quiescent state, and you are driven to leave the stable in disgust. Old John Lawrence has some sound cautions and remarks on this point, which we cite.

He says : "Suffer no person belonging to the seller to be with you in the stall (unless you know and are well satisfied with the dealer's character) during your inspection, that the horse may not be rendered unquiet, either designedly or at the mere presence of an habitual tormentor. A short time since I had occasion to examine a horse, for a friend, at the stable of a considerable dealer ; it was a very beautiful and well-shaped nag, but, as is commonly the hard fate of such, he appeared to have done too much work. The attendant, from a superabundant share of regard to my safety, must needs hold the horse's head whilst I examined his legs, still assuring me he was perfectly quiet ; nevertheless, every time I attempted to feel below his knees the horse started, and flew about the stall in a strange manner, to the no small risk of my toes and shins. Whilst I stood musing and wondering what beside the devil could possibly ail the animal, I discovered a short whip under the arm of the jockey, with which he had, no doubt, tickled the neck and chest of the horse whenever I stooped down with the intent of handling his legs. I wished this adept good morning.

A good quiet stable survey is a material prelude, the horse being under none of that excitement which will probably have place in him when abroad upon the show. Unless, indeed, he should have been previously subject to

that most barbarous stable discipline, which I too often witnessed in days of yore, but which, I hope, does not in the present day—at least, not in so great a degree or so usually—disgrace the conduct of our dealers. I refer to the daily, too probably almost hourly, attendance of a fellow with a whip, who flogs and cuts the horses up and down in their stalls, causing them to jump and fly about as if mad, keeping them in such a constant state of miserable apprehension, that they dread the approach of any human being. The motive of this was to render them active, ready, and lively on a show, and to hide defects; and, as an exaggeration of this monstrous barbarity, the unfortunate cripples had even an additional share of this discipline, being whipped and beat most cruelly for putting out, in order to ease, a crippled limb.”

The Feet and Legs.—The first thing to be observed is, that when standing evenly the weight is thrown equally on both feet. If there be any complaint in the fore feet one will probably be “pointed,” that is, extended before the other, or he will frequently alter the position of them, taking one up and setting the other down; or the hind legs will be brought under the body to relieve the fore feet of some portion of the weight. Any of these symptoms will direct your attention to the feet when you see him out.

Respiration.—To judge of his respiration it is necessary to be acquainted with the indications of health. Observe if the flank alternately rises and falls with regularity. In health the respiration of the horse is from four to eight per minute, average six in the daytime; during sleep it is seldom more than four. If quicker than ordinary, it betokens present fever or defective lungs. Should it arise from present fever, other symptoms will be developed, such as increased pulse, heat of mouth, and dulness, while the delicate pink appearance which the membrane covering the partition of the nostrils assumes in health will be increased in colour. But if none of these symptoms of ill-health are present, and yet the horse heaves at the flank more than ordinary, if the weather be moderate, and the stable not oppressively hot, it is probable such a horse is thick-winded.

When inspiration appears to be performed readily and quickly, as in health, by a single action, but expiration with difficulty by an irregular and prolonged movement,

or double action, the respiratory muscles appearing as if interrupted in the act of expelling the air, and then the flank drops suddenly, it is a symptom of broken wind. His cough should then be tried. The cough of a broken-winded horse is a peculiar, low, hollow grunt, difficult to describe, but when once heard easily recognised.

Cough.—The cough can generally be elicited by pinching the larynx or trachea. This, however, is not an infallible test. We have met with sound as well as broken-winded horses that cannot be made to cough at all. In these cases, when there is any irregularity in the movement of the flank, which would lead to the suspicion of broken wind, and there is unusual hardness of the windpipe, which does not give way on pinching, it may be taken as a symptom of disorganisation in addition to the probability of broken wind.

Mange.—Should the hair be rubbed off in some places, especially about the head, flanks, and tail, or he is observed rubbing himself against the sides of the stall, there is danger of his being mangy. In this case his coat will be found rough and staring.

Temper.—The absence of the vices of kicking and biting may be inferred from the manner of the groom when entering the stall, and by the quiet method with which he unclothes and dusts him over, and combs out his mane and tail. If he be a biter, his head will probably be tied short to the neck, or the groom will seize hold of him short by the halter or bridle, sometimes giving him a shake or looking sternly at him. Desire to see his hind and fore feet, and by the manner in which he permits the groom to lift them, a guess may be made as to his quietness to groom his heels, or in shoeing.

The Eyes.—While the horse is in the act of being led out of the stable to the light, closely observe his manner and action. If the ears move in quick changes of direction, as if alarmed at every noise, and he hangs back on the halter, raising his feet higher than ordinary, and putting them down as if fearful and uncertain of his step, it leads us to suspect his eyes, though sometimes these symptoms will be observed when the eyes are perfect if the stable has been a dark one.

Standing, Grogginess.—When the horse is shown out, notice if he stand firm on his feet, with his weight thrown

boldly on his back sinews and pasterns. If there is any appearance of shaking or tottering of the fore limbs indicative of grogginess, it will be endeavoured to be disguised by the groom continually pulling at the bit, to make him shift his legs and stand advantageously. A lame horse is never permitted to stand still a moment, and the groom; though pretending to soothe, is in reality agitating him, while the shrewd and crafty seller will most probably endeavour to withdraw your scrutiny from the defective point, by calling your attention to his spirit or playfulness. If any of these manœuvres are apparent, be upon your guard. The groggy horse inclines a little forward at the knee, or it is readily bent by the least touch behind; he rests his weight on his toes, and when standing undisturbed brings his hind legs under him. Some young horses, before they have been backed, have this deformity, from malformation of the knee; but if, in addition to this bending forward, there is any tremulous motion of the limbs, it is a decided proof of the existence of that most destructive affection, navicular disease; for an account of which the reader is referred to the veterinary portion of this work.

To return, the horse being led out, he will most probably be placed upon rising ground, for the purpose of showing his fore quarters to advantage, which also affords the buyer an opportunity of another examination in a good light. The shoulder is by this position made to appear more sloping; and dealers, to give that appearance, try to make the near leg to stand before the off leg. Now is the time for perceiving whether his "understanding" is sound; for though the dealer may declare that he is as sound as a *bell*, still we should disregard what he may say on that subject, and judge for ourselves.

Though the dealer is perfectly justified in these little manœuvres to show off his goods to the best advantage, more especially in so fancy an article as a horse—being no more than is done and allowed by every tradesman—the prudent purchaser will not please his eye at the expense of his judgment, but see the horse on level ground and with his feet placed evenly.

If one foot is more upright than the other, that foot is diseased; the same weight is not thrown on it, and remember that the horse never shams a complaint. If the

foot is of different temperature, active disease is going on ; if an old standing complaint, the feet will be found of different size, and possibly the muscles of the arm and shoulder diminished in volume.

The purchaser should take his position in front of the horse, and examine his fore legs—that they are in proper position ; that there is no weakness in the pasterns, or enlargement of the fetlocks ; and that the feet are of the same size, and stand square to the front. In brief, the fore legs should descend in a straight line from the bottom of the shoulder, *i.e.*, in a lateral view ; but when seen in front to incline gently inwards. If the elbow projects directly backwards, and the toe points with precision forwards, we may rest satisfied that the horse is not twisted in his fore legs. Turning the toe in or out, in standing, is apt to be accompanied with distortion or deformity of the limb ; this circumstance, therefore, is seldom seen without materially lessening the value of a horse. Of the two faults, turning them out is the greater ; for the pointing inward is seldom carried to extreme. A good arm is broad and thick ; long, when compared to the leg, and marked exteriorly by muscular prominences ; the elbow cannot project too far back, and the plumper the muscle immediately above it, the greater may we conclude to be the animal's powers.

General Health.—We may judge of the general state of the animal's health by his breathing condition, the brightness of his eye, the colour of the membrane lining the lid, and that of the membrane lining the nostril, which in health is of a pale pink. If it is a rosy red, there is excitement of the system ; and if it is pale, approaching to white, it is a sign of debility.

Each nostril should be alternately closed by the hand, to ascertain that the air passages are not obstructed by polypus, or enlargement of the turbinated bones.

Nasal Discharge, Glanders.—Should there be any undue discharge from the nostrils, you will probably be told it proceeds from slight cold ; in that case, an accelerated pulse and affection of the eyes are usually present. Nevertheless, as a precautionary measure, the branches of the under-jaw should be felt for enlargement of the glands ; if, although enlarged, they are movable and tender, it is probably nothing more than a catarrhal affection. And

here it may be necessary to observe, that in deciding upon the disease with which the horse is afflicted, it is requisite to bear in mind the age of the animal. In examining the head of a young horse, should the space between the branches be hot, tumid, and tender, the membrane of the nose intensely red, with profuse discharge from both nostrils, and cough and fever present itself, we may more than suspect strangles. Where, however, there is neither cough nor fever, but one nostril, and that the left, affected, the discharge lighter in colour, and almost transparent, yet clammy and sticky, and the gland on that side adherent to the jaw-bone, glanders is indicated. In this case, should the lining membrane of the nostril be found pale, or of a leaden colour, with small circular ulcers, having abrupt and prominent edges, there can be no second opinion on the subject.

We caution the inexperienced examiner not to mistake for an ulcer the orifice of the nasal duct, which is situated in the inner side, just within the nostril on the continuation of the common skin of the muzzle, and which conveys the tears from the eye into the nose. And yet more seriously would we warn him, in all suspicious cases, to be careful he has no chaps or sore places on his hands or face. There is, unfortunately, no doubt that this dreadful disease is communicable to the human being. As few persons will buy a horse with any symptoms of actual disease, however slight, if they can help it, the inquiry is better left to a professional man, in case any of these symptoms make their appearance after purchase.

The Crest, Condition, Age.—His crest should feel hard and full, and firmly and closely attached to his neck; if it be lax, he is out of condition. His skin should feel kind, and look glossy, and the muscles of the body feel hard and elastic to the touch. In the old horse, the head grows lean and fine, and the features more striking and blood-like, the neck fine, withers short, and the back sinks; the lips exhibit a lean and shrivelled appearance, and the lower lip hangs considerably below the upper. In youth they are round and plump, and meet together, and the ridges of the roof of the mouth will be found prominent. In age, the middle of the nose will sometimes be found indented by the long-continued pressure of the nose-band of the head-stall.

The Teeth and Mouth.—In lifting his lip, if the incisor teeth shut close, even, and are perpendicular, he is young. As he grows older, they project forward in a horizontal direction, and the upper and under edges do not meet with evenness, the upper projecting over the under teeth. The longer his teeth are, the gums being dry and shrunk from them, the more advanced he is in age. This appearance of his teeth cannot be altered by the arts of the dealer. In youth, the teeth are flattened at front and rear, and long from side to side; at eight years old they are oval; as age advances, they become round, and in extreme old age, triangular, yellow, and incrustated, and the tusks become blunt. If there are any marks of extraordinary wear in the central teeth, there is reason to suspect crib-biting, and in old cribbers the outer edge of the front teeth are worn away, and little pieces are sometimes broken off by the attrition against the manger; if such is the case, look to the neck for marks of the crib-biting strap. Dishonest dealers attempt to disguise age by reproducing the mark in the corner teeth by means of a hot iron or caustic; the fraud is easily detected by a judge, as it is usually overdone, and the marks do not correspond with the length, shape, and duration of the teeth, and the “bishoped” horse is usually loth to have his mouth meddled with.

CHAPTER III

BUYING A HORSE—TRIAL AFTER EXAMINATION

HAVING attentively looked over the horse as he stands, and discovered nothing objectionable to the eye, it is prudent to see him through his paces before proceeding to ascertain, by careful examination, what defects, blemishes, etc., which may have tendency to produce unsoundness, he is afflicted with; as the action of a horse, when closely observed, guides us to his defective points.

Action, Lameness.—He should be first walked, and then trotted, without any whip near him, slowly down the ride, allowing the animal to have the whole of the halter

to himself ; his head will then be entirely unconstrained, and any irregularities in his action are easily detected.

The action should be scrutinised most attentively immediately he steps off, as defects are then most visible ; for, not unfrequently, lameness disappears after few moments' exercise.

Should one of the fore feet be much affected, it will be evident by the up and down motion of the head, and the different degree of force with which he puts his feet to the ground. Horses that are lame before drop their heads when stepping on the sound leg, and raise it when the weight is thrown on the lame leg ; but when they are lame behind the action (though not so perceptible) is reversed ; they throw up their head a little when the sound leg comes to the ground, and depress it when the lame leg propels the body, and the motion of the lame leg is slow, while the sound one is jerked quickly forward to sustain the weight.

"Beaning" the Foot.—When both fore feet are equally tender (which is not uncommon in groggy horses) it is more difficult to judge of his action—it is not uneven, and the limp is not perceptible, but he steps short and tenderly, with a general appearance of contraction. Dishonest dealers at fairs and auctions resort to a scheme by which groggy lameness in one leg is disguised by making the action even. This barbarous trick is known in various parts by the slang terms of "diamonding," "beaning," "balancing," or "wedging" ; and is performed by removing the shoe of the sound foot, and paring out the sole, until it yields to the pressure of the thumb. The shoe is then replaced, and a wedge of wood, a pebble, or bean, is driven in between the sole and shoe until sufficient pain is produced to make the horse equally lame on both legs. Although the lameness is less evident, yet a person accustomed to the action of horses will easily detect it ; and if the animal is allowed to stand undisturbed, it will be shown something is wrong by his repeatedly shifting his legs.

Another trick of these rascals to conceal lameness, or to give an appearance of energy to the sluggard or worn-out horse, is the torture of the lash, termed "firing." The poor animal, previously to being shown, is so barbarously flagellated, that, under the influence of terror of the further application of the whip, his attention is withdrawn

from the disease; he feels not the lesser pain, but trots off, heedless of his lameness, or at least showing it much less. Whenever there is much punishment, or the threat of it, while showing a horse, be sure there is something to conceal.

The Trot.—If his trot is good, the foot is boldly delivered with an easy, light, and springy movement. Its course is straight forward and downward, not dishing to either side; the motion should be from the elbow as well as the knee; the hind legs gathered well under the body, following with regularity and precision; the toes fairly raised from the ground, and spread pretty accurately in the impress of the fore feet; if they pass beyond they are likely to overreach. In the trot he should go lightly with the fore feet; but strike the ground energetically with the hind, taking a long darting stride, and shooting, as it were, the body forward. The horse that throws his legs confusedly about should be rejected, for though most young and uneducated horses have an ungraceful and disorderly action, the sluggard is never precise and uniform in his trot.

In criticising action, attention must be paid to breed; but it should be sufficiently high in a hack to clear all ordinary irregularities on the ground. If it is very high, look out for trace of having worn a knee-cap. Be careful to observe that he does not occasionally drop; a casual giving way on either leg, in the trot, is a sufficient hint to reject the animal, for such a horse is a constant danger to his rider's neck.

Though the best horse may stumble, yet, until after tripping, he springs out as if he feared the whip or spur; if he does, he is an old offender. Look again well to his knees and head. Observe that he goes clear in all his paces, and that one leg does not interfere with the other; horses that go very near are more likely to cut when tired.

The Tail.—The "set-on" of the tail is not to be overlooked; a horse that "carries two good ends" (of which the head forms one, and the tail the other), always looks grand and showy. Above all others, the charger should possess this point in perfection to coincide with the character of his display in the parade of a field-day. The tail, in most horses, should form, when elevated, a straight line, or nearly so, with the back; a gentle declivity of the

croup, however, from the summit of the rump, denotes the blood-like quarter, and adds much grace to this part in the thoroughbred horse. Should this line, however, decline very much, the quarters lose much of their beauty as well as their natural power. Nothing is so ugly in a full-quartered horse as to see the tail set on low down, and issuing abruptly from the rump. The old-fashioned dealers figged all horses indiscriminately, which was injudicious; for those who naturally carried a good tail came under the same suspicion as those who were "gingered" for the dealer's purpose. Hackneys were often called "cock-tails" from this circumstance, in contradistinction to those of the thoroughbred, who never carry any but a drooping tail. A cocked-tail would be incompatible with a blood-quarter, yet in a generation, some of whom yet survive, the detestable practice of "nicking," and even "rat-tailing," hunters of good blood, though not stainless, prevailed, so potent is fashion over common sense and humanity.

Diseases and Unsoundness.—Satisfied with the tail in the strawed or tan-ride, he should next be mounted, and the trial be repeated on the pavement or road; for there are many cases of defect which do not show on soft ground, at a walking pace, or when the horse is unburdened. If he step away boldly, the toe in a direct line with the body, the knee fairly bent, and his foot up and planted firmly down again on the ground fearlessly and flat, without any dropping of his head, you may conclude him sound in action. His hind legs, well lifted up and well tucked under him, should follow his fore legs with regularity; and if in running him up hill he goes without dragging his toe, you may infer the same behind. In the gallop, if he takes up his legs quick and dashes in his haunches, not bringing his hind legs after him, his action is good. During this display of action, the examinant will have an opportunity of judging of the goodness of his wind; if he does not ride the animal himself, he should stand close to the horse at the moment he comes into the gallop. The thick-winded horse breathes with difficulty, and is soon distressed. The flanks heave much and rapidly, there is some little noise, but the laborious heaving of the flank is the principal indication. A horse unused to exercise, or if fat, or exercised on a full stomach,

will show symptoms of thick wind; and it has been observed of great feeders who never breathe freely until they have gone a mile or two, or begin to sweat, that they are able to do more work than others that do not labour under the same difficulty.

"Wheezing" is a sound like an asthmatic person when a little hurried. Wheezing may frequently be heard while at rest in the stable.

"Whistling," or piping, is a shriller sound than wheezing, but it is only heard after exercise, and that of some continuance. A short gallop up hill is sometimes necessary to develop it, but the whistler is soon distressed. "Never buy a whistler, he cannot improve on your hand, and he is almost sure to get to worse," said Sir Henry Peyton to Nimrod, and the same advice may be given in respect of all these affections of the air passages.

"Roaring" is not heard when at rest. In the majority it is only developed by exertion, which quickens the breathing, and the noise is increased in proportion as the pace is accelerated, though in a few it is audible as soon as put into the trot. Knowing dealers, who wish to prevent the noise from reaching the ears of an inexperienced purchaser, when showing a "bull" of good action, start the horse a considerable distance before putting him to the gallop, and in returning, slacken the pace, so that the breathing becomes tranquil before the horse reaches the examiner; this is called "coming the long trot." Many of these lesions are consequences of inflamed lungs, or diseased alterations of the air passages, and most of them are modifications of the same disease. Sometimes they exist in so slight a degree as to be discoverable only by quick and long-continued exertion, but when they are suspected, they should be tried by a brushing gallop, though this is not always allowed.

We next proceed to search for blemishes and those indications of unsoundness which are apparent to external examination, bearing in mind any symptoms of suspicious appearances in his action that may lead us to suspect particular parts, which should then be subjected to the severest scrutiny.

Any scars about the head should direct attention to the knees, or they may lead one to suspect there may have been an attack of stumbling or staggers.

The neck should be searched to ascertain that both jugular veins are perfect. This is discovered by pressing on the lower part of the neck, with sufficient force to stop the return of blood from the head ; if the vein be perfect, it will fill and swell from that point upwards towards the head. The loss of one of them, if recent, predisposes the horse to staggers or apoplexy, and he cannot be turned out to grass or straw yard without risk. The withers should be examined for bruises from the saddle, as he will be unserviceable as long as the inflammation or swelling continues.

The slightest tendency to sore backs makes a horse unserviceable for many months, and not unfrequently causes him to rear and plunge on mounting.

The shoulders should be examined for tumours. If there are any marks of setons or blisters about the points, it is probable he has been treated for shoulder lameness, and the attention of the examiner will be directed to the foot ; which, ninety-nine cases out of a hundred, is the seat of lameness forward. If that is found narrow, upright, and strong, with the heels high, we may suspect navicular disease.

The chest and breast should also be searched for marks of rowels, setons, and blisters, for the remains of them render it probable that the horse has been under treatment for inflamed lungs or chest affections, and should, in prudence, direct the purchaser to ascertain by a smart gallop whether the mischief is of a permanent nature.

The knees should be examined with the utmost care, first that they correspond in shape, and secondly, to ascertain whether the skin has been broken by falls ; but it does not follow that a mark or scar indicates a stumbler, and an accidental blemish should not induce us at once to condemn a well-formed animal.

A broken knee may happen from a variety of causes. The safest horse may fall by an unavoidable accident, such as a false step, from something giving way under the foot, as a round stone, from fatigue and over-exertion, or from a bad rider. But a broken knee is a suspicious circumstance ; it may be taken as an indication of existing or recent unsoundness, and the slightest mark calls for careful observation of every part of the horse, of his make and action, and suggests the narrowest scrutiny of the legs and feet. A

tight shoe, a nail driven too close, or from bad shoeing; the toe being left too long, causes a horse to trip; tenderness in the feet, contraction, corns, and thrush; a scar on the head, above the eye (for a forward fall of the horse leaves unmistakable marks there), is a suspicious sign; when no trace of local disease can be found to account for them, the inquiry should be followed up into the horse's constitution, for the staggers or colic may have occasioned the accident.

When a scar on the knee is observed in connection with low withers, a thick and upright shoulder and pasterns, with the legs inclined under the bone, he is unwise who does not take the hint that the faulty formation has not produced its natural consequence. To discover the normal state of the knee is not so easy as some suppose, as occasionally the hair grows so well over the wound as to leave it hardly discernible; but on minute inspection, when there has been a scar, an interception of the gloss is apparent, as if the hair grew in an oblique direction; should this be observed on bending the joint, the secret will be exposed. The shank should be examined for splint, strained or enlarged flexors, and the marks of firing or blisters.

In inspecting the leg the eye alone should not be trusted, particularly in hairy-legged horses; but after minutely comparing the appearance of the two limbs, the hand should be deliberately passed down both shanks before and behind; any difference before or behind points to a deviation from health.

In the sound flat limb, the tendon is well defined, perfectly distinct, and has a hard tense feel that resembles the touch of a cord tightly strung. If the back sinews feel thick, the flexor tendons and their sheaths swelled and rounded, leaving no distinctive marks, as it were, between the one and the other, but all swelled into one mass with the bone, great mischief has at one time happened; either some of the ligaments have been ruptured, or there has been inflammation, effusion, and adhesion of the synovial sheaths of the flexor tendons; or such relaxation has taken place from strain and subsequent inflammation as will always keep him weak. When the injury is recent, it is accompanied with more or less swelling, heat, and lameness. By time and treatment the first are removed, but the swelling remains, and the thickening of the tendons shows the mischief that has been done. Whenever there

is manifest alteration of structure here, and yet the animal is apparently sound in action, the purchaser should bear in mind that the soundness is often the effect of rest; and should the animal be again put to work, he will become lame. Bear in mind, in such case, you cannot return him, for no man in his senses would give a special warranty against it.

Splints.—These, if large, are visible in the deviation of the outline of the leg; if small, the hand discovers them.

Every excrescence on the cannon bone, in horseman's language, is termed a splint. The true splint is, in fact, a conversion into bone of a part of the cartilage connecting the large and small metacarpal bones. The inflammation is set up by concussion or strain. Horses are lame from them while there is inflammation in the cartilage, and the tumour is growing and distending the membrane covering the bone and cartilage. But when the tumour is formed, the inflammation has subsided, and the periosteum has accommodated itself to the enlargement, the horse is no longer lame, nor more likely to become lame from that splint than one without; the same causes that produced the first may produce a second.

The splint, if so large as to interfere with action, rendering the horse liable to strike, is objectionable, or so near the knee or ligaments as to interfere with their freedom of action; otherwise it is of little consequence, beyond the blemish destroying the line of beauty. The worst splints are those discernible only by the lameness they produce.

Any marks of firing or blistering should make the purchaser cautious, and endeavor to ascertain the cause of the treatment; after blistering, the hair is sometimes a shade different in the colour, and staves a little shorter and bristly, and wants the natural gloss.

The fetlock joint, from being the principal seat of motion below the knee, and from its complicated structure, is particularly subject to injuries. The fetlocks should be subjected to the strictest examination for enlargements, which are best ascertained by carefully comparing them with each other, as any difference in size is indicative of strained or even ruptured ligaments, and consequently permanent weakness of that important part.

If the injury be recent, there probably will be heat and

pain on pressure ; and any signs of blistering or other treatment, though no enlargement or lameness is apparent, should induce the buyer to view the animal with increased suspicion.

Should there be any sores or callous places about the fetlocks or pasterns, he is a cutter, and possibly the marks of the foot may be visible. If there is no malformation to account for it, it may have been done when fatigued, or it may have arisen from improper shoeing ; his feet should then be again examined.

If an old offender, he may probably have a peculiar shoe, rather thicker and narrower in the web on the inside than the outside, and nailed only on the outside of the foot, and round the toe ; or the opposite shoe is found filed away or bevelled off, with the hoof projecting a little over the shoe. Where the feet, though well formed, are placed closer than desirable in narrow-chested horses, and therefore apt to cut, particularly when tired, we sometimes find a shoe which is thinner on the inside than the outside.

At other times various ingenious devices, calculated rather to increase than remedy the evil, have been resorted to ; such as putting on shoes narrower on the inside of the foot, and the iron within the wall of the quarters reduced in thickness by the rasp. If none of these schemes have been resorted to, to obviate the defect, the horn of the opposite foot will sometimes be found polished by the attrition ; for it is not the shoe that cuts once in a hundred times, but the hoof. In horses that interfere, we generally find the inside quarter lower than the outer, or the toes turned outwards—the fault being in the leg that receives the mischief while sustaining the weight, not in the foot that gives the blow. The tired horse throws his legs about, and frequently cuts himself ; and it is a fault of most young uneducated horses, especially if they have been backed inconsiderately, or worked too early.

If there are any symptoms of “knucking over” or inclination of the fetlocks forward, serious injury has happened.

The Fetlock Joint.—The hair above and below the fetlock joint should be carefully searched for the scars left by the operation of neurotomy. Pricking the fetlock, if you have reason to suspect that this operation has been performed, will show whether sensation has been destroyed. About

the fetlocks are frequently found little puffy tumours, absurdly denominated windgalls, from a supposition of farriers that they contain wind.

The Tendons.—Wherever parts move and press on each other, and between tendons, particularly about the extremities, there are placed vesicles, termed *bursæ mucosæ*, containing synovia, a lubricating fluid to prevent joint friction. When a horse has been compelled to undergo excessive exertion, an increased supply of synovia is secreted, which distends the sac; this sets up chronic inflammation of the synovial membrane—morbid secretion and visible enlargement follow. There are few horses that have done much work without these thickenings.

Though rest and pressure will diminish them, when once enlarged, labour will reproduce them; they are of little consequence beyond the blemish, unless very large, and in most cases may be regarded as mere indications of hard work.

Ring-bone.—The pastern is the seat of a bony tumour termed ring-bone; it is the result of inflammation and partial conversion into bone of that portion of the cartilages of the foot which rises above and nearly encircles the coronet. These cartilages, extending backward considerably beyond the coffin bone, form the elastic frame of the posterior parts of the foot; they here take the name of the "lateral cartilages." When ossific inflammation is set up in this part, from its tendency to spread round the pastern joint it has taken its name of ring-bone. When, however, the ossification appears only at the quarters, it is termed "ossification of the lateral cartilages." It is discovered by their prominence and rigidity when pressed between the finger and thumb. Upon the soundness of these parts depend the elasticity and consequent usefulness of the foot. However trifling the apparent alteration of structure, it is a serious detraction from the efficiency of a hack; though on soft ground, at a slow pace, the draught horse will work apparently sound. If in feeling first one leg and then the other we discover any difference between them, disease more or less is present; he may not be lame, but he is not clean upon his legs. Splints, windgalls, and ring-bones may be present without occasioning lameness; but they are all unnatural, are considered blemishes, and are to be

regarded with a suspicious eye, as either denoting past hard work or betokening future evils. On the same principle, a horse may have a spavin, and be only stiff from it at starting, or he may have a curb, or a thorough-pin, and be perfectly sound; but these are still blemishes, and as such detract from the intrinsic value of the animal.

The Foot.—We now arrive at the foot, the foundation of the horse; too much attention cannot be paid to it. The best way of judging whether there is malformation of the feet, either natural or the result of disease, is to face the horse, and compare the two feet together.

The Hoof.—"No foot, no horse" is a trite but very true adage. First, we should look to the size of the hoof; a small foot is not only objectionable in itself, even though it be a natural formation, but is often characteristic of disease. A small and upright hoof is a morbid structure. White hoofs are to be eyed with suspicion, for they are really weaker, and more liable to disease than black ones; and if a horse has one white and the other dark coloured, and he is lame, in nine cases out of ten it is the white hoof that is affected. Other considerations now engross our attention. Is it contracted? *i.e.*, is its circular form destroyed by narrowness at the heels? A good hoof is circular in the tread, or nearly so, measuring as much from side to side as from toe to heel; but we frequently find those that are morbid measuring as much from toe to heel as twice the lateral diameter. On the other hand, the wall of the hoof, which should, at all times, be perfectly smooth and free from ridges (the contrary indicating disease), may be very oblique, in which case it is not only circular, but spreads out, even to an abnormal degree, in the tread. Its wall should be round, smooth, level, and of a shining dark colour; full in front, of a proper obliquity, free from ribs or seams, and perfectly cool. Its proper obliquity is an angle of forty-five degrees with the plane of the shoe. If the angle is materially less, the sole is flat, or perhaps convex; if the angle exceeds it, the foot is contracted.

Shape.—When the outward line of the hoof is irregular, it marks what is called a "shelly foot." This is decidedly bad. If there are any protuberances or rings round it, they indicate that the feet have suffered from inflammation to such a degree as to produce unequal growth of horn. This frequently leaves injurious consequences in the internal

parts; such as a deposition of lymph between the horny and cartilaginous processes which connect the foot and hoof together. If there be any depression or cavity, it betrays separation of the foot from the hoof and shrinking of the coffin bone; the sole will then be found bulging.

A superficial examination of the foot is not sufficient; the shape of the foot may be good, yet there are other things to be considered. It may be well formed, yet thin and weak; and those feet, externally the most perfect, are sometimes contracted internally, and liable to the insidious affection termed navicular disease. Contraction is a serious defect; it is apparent and general, or hidden and partial.

When apparent externally, which is common among high-bred horses, with light heads and necks, high in the withers, with sloping shoulders, and that go near the ground, the foot presents an oblong rather than a circular shape; the curved line towards the heels becoming straight, and the heels approaching each other. The frog is hard, dry, and compressed, the foot small, and the heels upright; altogether the foot much resembles that of the mule.

Contraction.—But though a contracted foot is often an indicator of past disease, and there is a diminution of elasticity, it is not necessarily consequent that it is such unsoundness as incapacitates a horse from work. With care, such feet will work soundly to the end of life; for this change in shape has been effected by gradual and slow absorption and deposit; so that nature has had time to adapt the internal parts, and accommodate itself to the change, and elongation of the foot has taken place. When such feet feel hotter than ordinary, suspicion should be awakened, more especially if there is a marked difference between the temperature of one and the other. If there is indisputable pointing, then the horse is unsound,

Occult or partial contraction is not obvious externally, but there is diminished cavity of the horny box, from increase of the sole in thickness. In this case we usually find the foot of a circular figure more upright than natural, and displaying an unusual appearance of compactness and strength, the soles unusually hard and thick; and if you have a firm, unyielding sole, in a circular foot, it is dangerous as the forerunner of navicular disease.

Sand-crack.—The inner quarters of the hoof must be most minutely inspected for sand-crack; and it is not

always easy, without minute scrutiny, to detect sank-crack, where an attempt has been made to conceal it. A month's run in marshy ground will close it up; and low dealers, particularly at fairs and markets, and others who gain a livelihood by dealing in "screws," have a knack of neatly covering the crack with pitch, and oiling the foot to conceal the crack. Any oily appearance about the hoof should excite suspicion, and any fissure at all resembling sand-crack should cause the horse to be peremptorily rejected. Cracks indicate a dry and brittle hoof. The heels should be examined for any cracks, or appearance of heat and tenderness, as they are exceedingly troublesome to cure.

The Frog—Thrush.—The healthy frog is firm, yet pliable and elastic. Should there be a faint smell, or if on squeezing the frog matter exudes, there is thrush. By many people thrush is considered of little importance; but when it is remembered that where there is purulent matter there must have been inflammation, and that when a horse with a thrush steps on a stone he frequently drops with the pain, to the peril of his rider and the ruin of his knees, it must be admitted it is a serious objection in a saddle horse. If it can be ascertained that it is not of long standing, or that the horse has been placed in a situation to favour its approach—such as confinement on hot, moist litter—it is of no more consequence than so much diminution in his price as will cover the expense of keep and attendance while healing; but when thrush accompanies a foot smaller than usual, the heels bend in, and the frog is soft, he will not long remain sound.

The Sole.—The sole should be subject to close examination. In its healthy and natural state it is inclined to be concave, but if in connection with high heels an extraordinary concavity is present, it is a sign of internal contraction. If the sole is unusually thick, and does not give way during exertion, the elasticity of the foot must be diminished. If the sole is less concave than natural, or approaching to flat, the foot is weak.

Undue Paring.—If the foot appears to have been lately cut unusually deep at the angle where the shoe meets the inside heel, or if there is a peculiarity of shoeing at that part, the examiner may infer that all is not right, and that he has corns; send for the farrier to remove the shoe.

Firing, Blistering, etc.—The stifle is very rarely diseased, but it should be examined for enlargement, or any marks of rowelling or blistering; and the groin should not be overlooked for rupture.

The Hock.—The hock is one of the most important joints in the animal machine, and should always undergo the most rigid examination previous to purchase, as from its complicated structure, and the work it has to perform, it is the seat of lameness behind in nine cases out of ten. When standing behind the horse, if one of the hocks is diseased, the observer will perceive the bone does not incline gradually, as in the sound limb, but there is an abrupt prominence. Though to the unpractised eye this is not always perceptible on comparing them, yet by passing the hand down the inside of both hocks this abruptness will be felt. If there is any tenderness or heat on pressure, or the marks of recent cutting on the inside of the fetlock, or unequal wear of the shoes, especially at the toe, you may suspect spavin. Sometimes both hocks present an enlarged appearance, though there is neither heat, pain, or lameness (for hock lameness is frequently intermittent), such hocks should always be looked upon with suspicion. They are, in fact, unsound; for though the animal may, with natural malformation or morbid bone-growth, discharge his usual functions through life, in careful hands, without a return of lameness, yet the probability is he will fail if called upon for unusual exertion; and one day's violent exertion may ruin him for ever. In this case the examiner must be guided by circumstances. If the horse has excellences which counterbalance the defect, the price is correspondingly low, and the work required but moderate, he may be serviceable for years, and worth his money.

Certain forms of hock are prone to disease. Those approaching each other are predisposed to spavin and curb; those in which the point of the hock inclines too much backward are liable to spavin; and when the hock is too upright, narrow and straight, it is subject to thoroughpin. Capped hock is a soft fluctuating tumour on the point of the hock, it is an enlargement of one of the mucous sacs which surround the tendons inserted into that part. It is produced by blows, lying on rough stones, or kicking in the harness or stable. It is therefore frequently an indication of vice.

Curbs.—Curb is a longitudinal swelling at the back of the hind leg, three or four inches below the hock, seen best from the side; the enlargement is the result of a sudden strain of the ligaments, or inflammation of the sheaths of the tendon. It is attended with a good deal of lameness and swelling at first; but when that has subsided, and if time has elapsed without a recurrence of the lameness, it is of no more consequence than the unsightly blemish; but it should be remembered that curby hocks are liable to spavin.

Thoroughpin is situated above the hock joint, between the flexors of the hock and foot, projecting on each side; it is of the same nature as windgalls, being an enlarged mucous capsule, and is indicative of severe work or over-exertion.

Spavin.—Bog-spavin is a swelling situated in front of the hock, towards the inside of the joint; it is also an enlarged mucous capsule, but deeper seated, over which one of the subcutaneous veins passing, the blood in it becomes obstructed in the return, and thus increases the size of the tumour.

The shanks should be scrutinised for any symptoms of weakness, and the fetlocks for marks of cutting and windgall.

The Hind Feet.—The front of the hind feet should be examined for fissure; it is a most serious defect, and generally produces lameness. Notice the way in which he is shod, as it leads to the discovery of lameness and defects in action; in dealers' stables, however, you will rarely see any peculiarity in shoeing.

If the toe of the hind foot is found to extend a little over the shoe, it is to prevent "hammer and click" from being audible. If the toes of the hind feet drag, or we find the shoe squared off or worn, we may suspect disease of the hocks; and if the inside of the shoe is bevelled off, he is probably a "cutter."

The Spine.—He should now be "backed," to ascertain if he has received any injury of the spine; if he backs with difficulty, his hind quarters swaying from side to side, and when compelled to retrograde suddenly appears as if about to fall, he has received some injury. Some horses cannot be made to back, but when urged rear on their hind legs. His loins should be searched for marks of setons, or

blisters. Among stable-men it is termed "chinked in the chine," or, ricked in the back.

A remarkable indication of diseased spine sometimes shows itself; the horse dropping when turned suddenly in the trot, the hinder quarters appearing paralysed.

There are many blemishes and defects that render a hack unserviceable, which are of little or no consequence in harness. The greatest virtue in a gig horse is steadiness, which can only be ascertained by trial, and do not trust to the steadiness he evinces while the reins are in his owner's hands. The author of that capital work, "*The Adventures of a Gentleman in Search of a Horse*," truly says: "Whoever buys a stanhope horse without first driving him himself, is a fit subject for a commission of lunacy; it is not enough to put him in the break, he should be harnessed at once to the stanhope, and it is prudent to observe how he bears the ceremony of harnessing, and what kind of a start he makes. Much may be predicted of his qualifications for draught, or at all events his familiarity with the collar, by the degree of quiet with which he allows himself to be put to. If the ostler runs alongside of him at setting off, as is often the case, you may be sure the horse is distrusted; if you distrust it yourself, have nothing to do with him."

The Eyes.—The examination thus far completed, the horse should be returned to the stable for the purpose of examining his eyes, the most favourable position for which is about half a foot within the stable door. There should be no back or side lights, or the rays falling between the eyes of the examiner and those of the animal will interfere with distinct observation. The head should be so placed that a moderate light may fall on the eye of the horse, and the quantity of light can be easily regulated by bringing the horse's head more or less forward, until placed in the most favourable angle of incidence.

Though anyone may detect absolute blindness, yet the eye of the horse is susceptible of so many diseases, in which defective vision or partial blindness is present long before the sight is lost, that it requires more observation than most people imagine; indeed, a person unacquainted with the structure of the eye, and the different appearances it assumes, will not perceive it at all. There are certain forms of the eye, and structural peculiarities, that show a constitutional predisposition to disease. Small sleepy eyes, of

a bluish grey colour, or which have a flat, retracted, and sunken appearance, or those of a longish oval figure, are predisposed to ophthalmia. When the eyes appear full, with a fleshy circle round them, these are symptoms of bad eyes, and often the forerunners of blindness, particularly in the heads of coarse and fleshy horses, with heavy countenances, who frequently go blind with cataract at seven years old. Slight thickenings of the lid, or puckering towards the inner corner of the eye, a difference in size, a cloudiness or dulness of the iris, are indications of disease.

In examining the eyes, both must have an equal degree of light ; should any difference be apparent between them, one is diseased. The transparent cornea should be, as its name implies, perfectly clear.

Specks are best detected by standing at the shoulder ; if one is evident, and it can be clearly proved to be no more than the effect of accident, no importance need be attached to it. But it is impossible to ascertain this, and therefore the safest course is to assume that natural irritability and consequent inflammation of the eye is the cause.

Specks on the transparent cornea are generally the result of external injury ; there is seldom more than one. When very small and near the circumference, they are of little consequence ; but if large, or near the centre, they interfere with distinctness of vision, and make the horse shy. If opaque or milky lines are traced on its surface, it indicates the remains of former inflammation.

But it is necessary to observe that horses, before they are six years old, have not that transparency in their eyes which they display afterwards, because while young and growing the vessels of the eye are full, therefore before that age it is not the brilliancy of the eye that denotes its goodness. If there is excess of tears, it denotes debility, and should occasion a more than ordinary scrutiny ; in fact, all horses with weeping, dull, cloudy eyes should be rejected.

It may be remarked, as a general rule, that diseases of the eye are incurable. Have nothing to do with a horse when the trace of disease of the eye is visible. It is impossible, in a brief examination, to distinguish between simple ophthalmia and inflammation of the conjunctiva—the cause of which may have been a blow, or the intro-

duction of some irritating matter, which is curable by simple means—and the specific ophthalmia, a spontaneous affection, which ultimately culminates in cataract and blindness.

Viewed in front, the depths of the eye should be looked into; then sideways, which will assist in ascertaining the clearness and absence of specks on or within its surface.

Floating in the aqueous humour (which preserves the convexity of the cornea) is the iris, a muscular membrane, the dilatation and contraction of which form an oval aperture termed the pupil, which varies in size according to the quantity of light which falls upon the eye. The iris varies very little in colour in the horse, though it bears some analogy to the colour of the skin. It is rarely lighter than a hazel, or darker than a brown; except in milk-white, cream-coloured, or pied horses, when it is white, and they are termed wall-eyed. If it is of a pale variegated cinnamon colour, it is good. The pupil, or aperture of the iris, is that horizontal, oblong, bluish opening which admits the light to the posterior chambers of the eye. It is important that the oval shape of the pupil be perfect, for if any irregularity or unevenness is perceived, it is a symptom that the organ has received partial injury. In looking into the depths of the eye, through the pupil, in a strong light, it should exhibit a lively bluishness; in a moderate light it should be perfectly transparent; if milky or turbid, that is the remanet of former inflammation, which will probably recur.

In bringing the horse out of the stable to the light, if the pupil is large it is a bad sign; by alternately shading and admitting light, if it enlarges and lessens under its stimulus, the eye is good. But if the retina is immovable, the pupil large, and of an invariable size, whether shaded or exposed to intense light—though no disorganisation is apparent, the eye appearing bright, of a peculiar glossy aspect, and of a greenish colour—the animal is blind from the disease termed “glass eye,” *i.e.*, palsy of the optic nerve.

A decided cataract, or opacity of the crystalline lens, is easily detected; but when very small it may escape observation. It appears as a cloudy or pearly white substance within the pupil, towards the bottom of the eye.

If the pupil be round instead of a flat oval, it is an indication of cataract. When there is deep-seated cloudiness the eye should be condemned ; but if there is any white object before it, such as a white hat, neckcloth, waistcoat, or wall, the reflection on the cornea produces a mark having so much the appearance of a cataract as to have misled many an observer. Therefore, before deciding, hold the crown of a black hat against the eye, and observe at the same time if the mark disappears, which it will if it is only a reflection.

The reader who has carefully perused these minute directions, first, for the general examination, as buyer, of the animal he desires to possess ; and secondly, for the more frequent causes of unsoundness, will thank us for the following summary recapitulation, by Professor Stewart, of the points to be attended to :

"The Head.—For the eyes ; for cataract, glass-eyes, and specks. The nostrils ; for glanders, tumours, and cold. The glands between the branches of the lower jaw ; for enlargement. The throat ; for mark of crib-biting strap, and the tenderness which accompanies cold. The teeth ; for the age, and marks of crib-biting. The veins of the neck ; to see that both are entire.

The Fore-leg and Shoulder.—The seat of the collar ; for tumours. The point of the elbow ; for tumours. The knee ; for blemishes and stiffness of that joint. The shank ; for speedy-cut, splint, and strain. The fetlock joint ; for enlargement, windgalls, neurotomy, stringhalt, and marks of cutting. The pastern ; for ring-bone.

The Foot.—For side-bones ; sandcrack, contraction, thrush, corns, and flatsoles. The shoe ; for signs of cutting.

The Trunk Quarters.—Each side of the chest ; for marks of blisters and rowels. The space between the fore-legs ; for the same. The stifle ; for enlargement. The groin ; for rupture.

The Hock.—For capped hock, thoroughpin, bone-spavin, and bog-spavin (not blood-spavin). Then the horse should be mounted, and ridden a few hundred yards at a gallop, in order to quicken his breathing, and thereby display the presence or absence of roaring, thick wind, or broken wind."

Your examination having proved satisfactory, you decide on purchasing ; but before you part with your money, pray

learn something of the seller. For should your bargain not turn out as you expected, upon further acquaintance, trial, and second examination, you will be aware what chance of satisfaction or redress you have against the vendor.

The horse, if returned, must of course be in the same condition in which he was received, except so far as the disease for which he is returned may have progressed in the meantime.

It is advisable to inquire of the seller how he has been accustomed to diet and clothe the animal; whether his feet were stopped; and the same treatment should be pursued till his soundness is ascertained.

Note the temperature of the stable; if his new habitation be hotter, you may probably induce an inflammatory attack of the lungs.

Beware of putting a saddle on a new horse that does not fit him. While the question of soundness is still doubtful, it is far better to use the saddle he has been accustomed to, for if his back becomes galled while trying him, which is not unusual, the dealer will object to take him back unless full compensation is made; and reasonably so, for he is unfitted for sale or for work till it is healed, which is not to be effected in a day. It is also a point for calculation whether he may not chance to fall sick while standing in high condition in stable—in which case the dealer is subjected to loss.

Never forget that every horse is adapted to some particular purpose; for horses not only differ in kind, but, like men, in courage, temper, intelligence, stamina, etc., and the selection of them, in regard to these particulars, constitute the most arduous and nicest duties of the buyer. He should be able readily to acknowledge good or bad conformation; trace breeding in the outline, and discover what indicates good or bad in instinctive or in constitutional qualities.

It requires some experience, but more attentive observation, to be what is termed a "judge" in horse phraseology. To know at once, almost by a cast of the eye, whether the nag is likely to suit. Is he cut out for a hackney, or is he calculated for harness? Does he look like a hunter, or has he serviceable stoutness, a quiet eye, and look likely for the road? Does he show blood, or is he all over a "cross-bred 'un?"

If you can answer the question submitted in this chapter to your own satisfaction, buy a horse to yourself. If you cannot, and distrust your own opinion, get some more experienced horseman to look over the animal you desire to purchase, before you part with your cash.

CHAPTER IV

THE AGE OF THE HORSE FROM HIS MOUTH

IN the generality of common-bred stock, foaled between the beginning of April and the end of June—that are living pretty much in a state of nature, on succulent food, to the end of three years old before they are handled—a considerable uniformity in the approach of their permanent teeth and the age in general may be told without contradiction. But man, for his own ends and purposes, has used such artificial means in the rearing and treatment of the young horse, that he has in a manner subverted Nature's laws in this particular; and it is not an uncommon occurrence to see a two, three, and four years old colt showing a three, four, or five years old mouth; that is, the teeth indicating those particular ages will be up, and nearly matured, a full year before Nature seems to ordain they should be. This may be seen in three parts of the young horses brought into the market in the spring of the year, as four and five years old, which are in reality only three and four. This deception is accomplished by pulling out the sucking-teeth at an early period. The mouth thus altered is comparatively easier of detection than the one which has obtained this forward appearance in its natural development.

The case is different in racing or thoroughbred stock, inasmuch to some the object would appear of more advantage to make them, if possible, appear even younger than they really are. But “query,” are not the peculiarities of nature so much altered in these young animals, by the early period in which they are foaled, the manner in which they are fed, and the early age at which they are broke and trained, as to occasion them to be more early matured in their general organisation, and consequently their teeth to appear at a much earlier period (in many instances in colts)

than if bred as common stock? Examples of this forward growth of the teeth have occurred, whereby the age might be doubted. We have also seen the reverse of this, though a rare occurrence, where the colt had arrived at the age of three, and not moved a tooth. These variations are commonly considered the result of early or late foaling, but as likely to occur from peculiarity of constitution.

The horse has twelve incisors or nipping teeth in the upper and lower jaws, opposed $\frac{6}{6}$; four tushes or tearing teeth, placed $\frac{1}{1}$, $\frac{1}{1}$, on each side of the cutting teeth; and six molars or grinding teeth, in the branch of each jaw above and below. The mare not having the tushes or canine teeth, has but thirty-six, while the full-mouthed horse has forty.

In ordinary cases the teeth will be found a sufficient criterion of the animal's age, if examined by one who can properly read their criteria.

With these preliminary remarks, we shall proceed to a description of the teeth—their structure, growth, and changes, as auxiliary to the determining of the age of the animal by their inspection.

THE STRUCTURE OF THE TEETH.

Each tooth is divided into three parts for the purpose of description, the *crown* or *table*, which is its upper surface; the *neck*, which is the part surmounted by gum, and where it usually begins to diminish in size; and the *fang*, or root, which is the part out of sight in the alveolar cavity.

The teeth are contained in the upper and lower jaw-bones (or maxillaries), in small bony cups or holes, each tooth being contained in a separate cavity, called collectively alveolar cavities; and in the molars, where there are more than one fang, each root has its separate cup, with bony matter intervening between itself and other fangs.

The teeth are organised bodies, as is shown by the absorption of their substance, in case of the roots of the temporary teeth; their sensibility to pain upon application of extreme heat, cold, or strong acids; their growth and changes of form; and their resistance of decay, while possessed of vitality. They possess, for their supply and sustainment, arteries, veins, and nerves.

The teeth are built up of three distinct substances, distinguishable from each other by the naked eye, and differing materially in density, hardness, and composition. They are known as the ivory, the enamel, and the *crusta petrosa* (or stony crust).

The *ivory* (called *bony* or *horny* substance, by old writers) constitutes the larger portion of the bulk of each tooth, and has numerous small pores or cavities. Like the small canals in the substance of bones, they seem to contain some colourless fluid, which nourishes or maintains the part in which they are situated. The ivory is by no means so close and hard as the noticed substance, the enamel.

The second substance, the *enamel*, is so close, hard, and homogeneous as to seem without animal matter. It is thin, white, and somewhat transparent, and so hard that it will strike fire with steel, like flint.

The third substance is the *crusta petrosa*, or stony coat. This forms the outer covering of the tooth, and having a dirty yellowish or dark appearance, was mistaken by ignorant farriers for a deposit of tartar, or "fur." It contains a great proportion of animal substance, and, under the microscope, is full of small vessels or tubes. It is plentiful in the alveolar cavities, and is there yellowish-white; but when at the neck of the tooth, above the gum, it becomes exposed to the chemical action of the air, the animal juices, and the food, it receives a dark stain, and looks like an accumulation of tartar. The *crusta petrosa* will be found filling up the pits (infundibula) of the grinding teeth of the upper jaw, and lining the top cavity of the incisors. It is full of vessels for nutriment and increase. Let us now consider the use of these three structures of the teeth, of various densities, cutting capabilities, and power to resist friction.

The outer coat, or *crusta petrosa*, which at first covers the tooth, is soon rubbed away from the greater part of the sides, so as to show the enamel. It is not reproduced there, but remains round the neck of the tooth, and appears to enact a part within the alveolar cavity, in which the fang or base of the tooth is situated. It is with the ivory and enamel, however, which build up the substance of the tooth, we have most to do.

Upon the ivory, and its wear in relation to the enamel, depends the great criterion, the presence, in a greater or

less degree, or the absence of "the mark in the mouth." The ivory in the molars will be found generally nearly on a level with cutting ridges of enamel, in spite of the greater attrition which the substance forming the larger portion of the surface of the table must receive. There is, however, sufficient projection of the enamel ridges to enable you to feel that the latter material is the great resisting power, and saves the destruction of the ivory by the grinding wear, to which, but for such support, it would be inevitably exposed.

At Birth.—Many months—at least, seven—before the foal is produced the germs of the teeth are visible in the cavities of the jaws of the foetus, as small bags of jelly-like consistence. As these grow they harden and press towards the surface of the gum, forcing their way through it; so that, about the time of birth, three of the grinding teeth are discoverable in each jaw; and generally two front cutting teeth, in the colt called *nippers*, which are placed almost laterally (see figure), and are remarkably large in comparison with the size of the animal. In a less developed colt the nippers will present themselves as in our drawing, at the end of a week or nine days. In the next two months, two more cutting teeth in each jaw, above and below, will bring the number up to eight. And now the jaws having widened, as is seen more fully in our second figure (six to seven months), the two nippers, which filled all the forepart of the narrow jaw, will have taken their proper places in front of the mouth. They will now begin to wear a little, and the outer edge, which was raised and sharp, will be brought on a level with the inner edge. The mouth, too, will alter little now until it forms as in our second figure, when yet two more nippers begin to be felt, and then seen, making up six below, and a like number above—thus filling up the "*colt's mouth*," as shown in the third drawing, inside and outside being figured. The name of "nipper" is peculiarly applicable to the front teeth of a colt's mouth. Those of *incisor* or *cutter*, adopted by professionals and anatomists, do not so well convey the idea of their action. The twitch of the head in the act of browsing or grazing is rather the act of "nipping," and partly snatching, than merely *cutting* off.

It may be noted at the seventh or eighth month, that though the corner milk-teeth are up, their edges do not

meet except at the front corners. This may be seen by our drawing, where the two outer teeth are remarkably low to the gum at the hinder part, towards the gape.

One Year Old.—Here we see the four middle teeth level, and the two outer ones becoming so. The mark in the middle teeth is wider and fainter; in the two next it is somewhat darker, longer, and narrower. By this time two pairs of the permanent teeth, the fourth molars, have made their appearance. A yearling has, therefore, twelve incisors and sixteen molars, or twenty-eight teeth in all. Of the molars, we may here remark that they offer little guide as to the age of the animal. Indeed, it is not easy to get a fair look at them; yet a few particulars are good to be known. They are covered outside with enamel, but not at the top, though several pieces are incorporated, if we may so term it, in the substance of their ivory—not being infundibula or pits as in the incisors, but forming grinding edges of irregular form in the face of the table. The grinders in the lower jaw are much smaller in surface than those of the upper. The wisdom of this provision is evident. The upper molar is fixed, the lower is movable by the lateral grinding motion of the lower jaw. Hence it is passed over the larger surface in the act of triturating the food; the peculiar action of the horse's jaw in this operation is open to the most superficial observer.

Two Years Old.—About two years old a fifth grinder is out. The incisors in forward animals show considerable wear. Some care is required now, for the “milk-teeth” are very likely the “horse-teeth” at five years old. The teeth only are now being spoken of; for of course the colt is not “furnished” to the horseman's eye. And now an important process is about to begin.

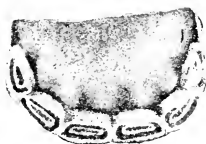
The first teeth were adapted to the size and wants of the young animal, and sufficiently large to occupy and to fill the colt's jaws; but when the jaws expand with the increasing growth of the animal, another and larger set is required. Evident provision is made for these, even before the colt is foaled. In cavities in the jaw, beneath the first and temporary teeth, are to be seen the rudiments of a second and permanent set. These gradually increase, some with greater rapidity than others, and, pressing upon the roots or fangs of the first teeth, the consequence of this pressure is, not that the first teeth are forced out, but the



Birth.



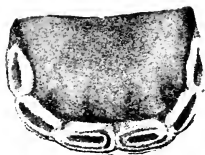
6 to 7 Months Old



1 Year Old



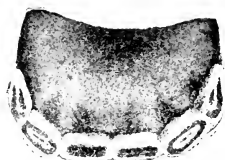
1 Year Old



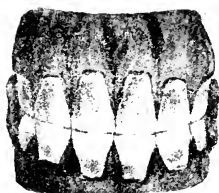
2 Years Old •



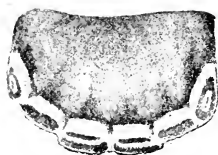
2 Years Old



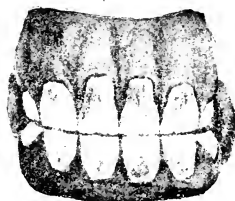
3 Years Old



3 Years Old



4 Years Old



4 Years Old



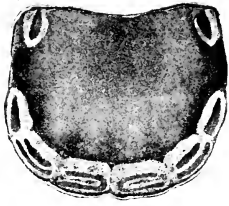
*Colts Incisor,
Front Back*

*Table of
Upper Molar*

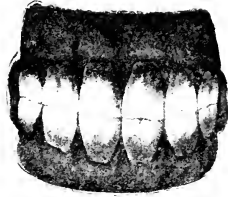
*Table of
Lower Molar*

Tusk

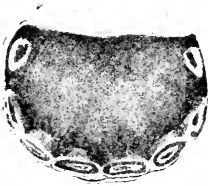
THE AGE OF THE HORSE FROM ITS MOUTH.



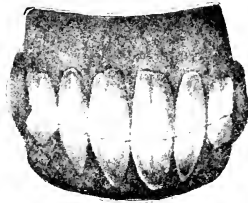
5 Years Old



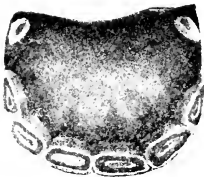
5 Years Old



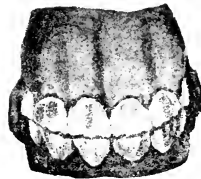
6 Years Old



6 Years Old

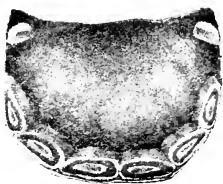


7 Years Old

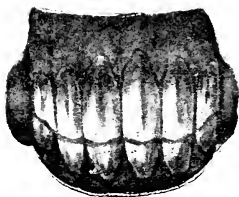


7 Years Old

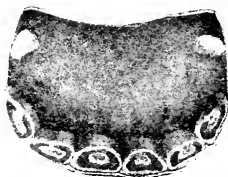
THE AGE OF THE HORSE FROM ITS MOUTH.



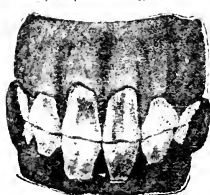
8 Years Old



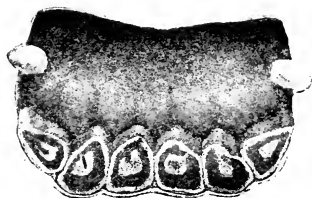
8 Years Old



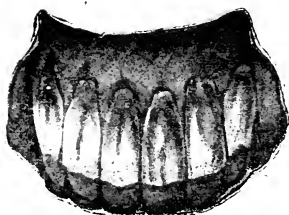
12 Years Old



12 Years Old



20 Years Old



Extreme old Age

THE AGE OF THE HORSE FROM ITS MOUTH.

portion pressed upon gradually disappears ; it is absorbed, taken up, and carried away by numerous little vessels, whose office it is to get rid of the worn-out or useless parts of the system. This absorption continues to proceed as the second teeth grow and press upon their predecessors, until the whole of the fang is gone, and the crown of the tooth, or that part of it which was above the gum, having no longer firm hold, drops out, and the second teeth appear, larger and stronger, and permanent. In a few instances, however, the second teeth do not rise immediately under the temporary or milk-teeth, but somewhat by their side ; and then, instead of this gradual process of absorption and disappearance from the point of the root upwards, the root being compressed sideways, diminishes throughout its whole bulk ; the crown of the tooth diminishes with the root, and the whole is pushed out of its place, to the forepart of the first grinder, and remains for a considerable time, under the name of a wolf's tooth ; causing swelling and soreness of the gums, and frequently wounding the cheeks. These would be gradually quite absorbed, but the process might be slow and the annoyance would be great ; therefore it is proper to get rid of these diminutive teeth, either by punching them out or drawing them as soon as they are perceived.

Three Years Old.—At three years old the two centre horse-teeth are so defined in their appearance—indeed, so well-grown—as to be unmistakable. The superior length and squareness over the colt or milk-teeth is manifest ; outside, too, they are darker in colour, the new coating of the stony covering (*crusta petrosa*) being only partially removed at the front edges. At “three off” the side milk-teeth are shed, and horse-teeth take their places. In our drawing of a three-year-old mouth this has not yet occurred ; but the inflammation of the gums, visible, though it does not appear painful to the animal, shows itself. The milk-teeth are finally shed about the seventh month after the completion of the third year, those of the lower jaw coming out first. It is often asked, Cannot this mouth be given to a forward two-year-old ? We are told so ; and here is the process, which we insert for what it is worth. The central nippers are punched or drawn out, and the others appear three or four months earlier than they otherwise would(?). In the natural

process they could only rise by long pressing upon, and causing the absorption of the first set. The first set mechanically oppose their rising, and that opposition being removed, it is asserted their progress will be more rapid. Three or four months will be gained, and these three or four months may enable the breeder to term him a late colt of a preceding year. To the observer accustomed to horses (although it is long practice alone which could give this facility of judgment), the general form of the animal, the little development of the forehead, the continuance of the mark on the next pair of nippers, its more evident existence in the corner ones, some enlargement or irregularity about the gums from the violence used in forcing out the teeth, the small growth of the first and fifth grinders, and the non-appearance of the sixth grinder, which, if it is not through the gum at three years old, is swelling under it, and preparing to get through; any or all of these circumstances, carefully attended to, will be a sufficient security against deception.

It is so unusual to look at the teeth in the upper jaw of a young horse, that the dealer who wishes to give a false appearance of age frequently confines his operation to the lower jaw; and, in consequence of this, when the teeth of the lower jaw are thus made to push out, they are still below the gum in the upper jaw, although in the natural process they are cut a little sooner in the upper than in the lower jaw. It may, therefore, be good and cautious policy to examine both jaws.

A horse, then, at three years old ought to have the central permanent nippers growing—the other two pairs wasting; six grinders in each jaw, above and below—the first and fifth molars level with the others, and the sixth protruding. The sharp edge of the new incisors, although it could not be well expressed in our drawing, will be very evident when compared with the neighbouring teeth. As the permanent nippers grow and press upon the teeth at their side, those teeth will begin gradually to diminish. Not only will the mark be wearing out, but the crowns of the teeth will be considerably smaller.

At Three Years and a Half, or between that and four, the next pair of nippers will be changed, and the mouth at that time cannot be mistaken. The central nippers will have attained nearly their full growth; a vacuity will

be left where the second stood, or they will begin to peep above the gum, and the corner ones will be diminished in breadth, worn down, and the mark becoming small and faint. At this period, likewise, the second pair of grinders will be shed, and, previous to this, will be the attempt of the dealer to give to his three-year-old an additional year, but the fraud may be detected by an examination similar to that which we have already described.

Four Years Old.—Here the two lateral horse-teeth are seen with the full “bean” in them, the two front incisors doing the principal work, as is shown by their surfaces and their inner enamel edge. We have here four pairs of horse-teeth well up (in the two jaws), the two outside milk-teeth in each remaining. In the outside view the gum is swelling, and the corner milk nippers are about to go. The horse incisors will soon come in their place. The surface of the teeth is clearly delineated in our dental map. You here perceive the central nippers fully developed, the edge somewhat worn off, the mark shorter, and wider, and fainter. The next pair will be up, but they will be small, with the mark deep, and extending quite across them, the corner nippers larger than the inside ones, yet smaller than they were, flat, and the mark nearly effaced. In the back part the sixth grinder will have risen to a level with the others, and the tushes will begin to appear.

Now, more than at any other time, will the dealer be anxious to put an additional year upon the animal; for the difference between a four-year-old colt and a five-year-old horse in strength, utility, and value is very great; but the want of wear in the other nippers, the small size of the corner ones, the little or no growth of the tush, the smallness of the second grinder, the low forehead, the legginess of the colt, and the thickness and little depth of the mouth, will, with the man of experience, detect the cheat.

The tushes are four in number, two in each jaw, situated between the nippers and the grinders, much nearer to the former than the latter, and nearer in the lower jaw than in the upper; but this distance increases in both jaws with the age of the animal. In shape, they somewhat resemble a cone, protruding about an inch from the gum, and having their extremity sharp-pointed and curved.

At the age of which we are now speaking, the tushes are almost peculiar to the horse, and castration does not appear to prevent or retard their development. All mares, however, have the beginnings of them in the chambers of the jaw, and they appear externally in most old mares. Their use is not evident—perhaps in the wild state of the animal they are weapons of offence, so that he can more firmly seize, and more deeply wound his enemy.

The breeder often attempts to hasten the appearance of the tush, and cuts deeply through the gum to remove the opposition which that would afford. To a little extent he succeeds. He may possibly gain a few weeks, but cannot gain more; for the resistance of the gum is not like that of a solid and firmly fixed tooth, and is much more easily overcome by the regular process of nature. After all, there is much uncertainty as to the appearance of the tush, and it may vary from the fourth year to four years and six months. It belongs, in the upper jaw, both to the inferior and superior maxillary bones; for, while its fang is deeply embedded in the inferior maxillary, the tooth penetrates the process of the superior maxillary at the union of those bones.

At four years and a half, or between that and five, the last important change takes place in the mouth of the horse. The corner nippers are shed, and the permanent ones begin to appear; the central nippers are considerably worn, and the next pair are beginning to show marks of wear. The tush has now protruded, and is generally a full half inch in height; outside it is rounded, with a groove on each side (see drawing), and within it is hollowed. From the period of the rising of the corner nipper, the animal changes its name. The colt is called a horse, the filly a mare, thenceforward.

Five Years Old.—At five years old the horse's mouth is all but perfect. The whole of the incisors are there; the edges of all the teeth meet fairly, and the whole apparatus looks more powerful and larger than in the fourth year. The tables of them all are, however, not yet formed, the two outermost displaying the bean perfect. The tush shows a mark of wear, the grooves already spoken of are disappearing. The outer edge is bulging, but the inside hollowed out and sharp. The sixth molar tooth is quite up, and the third grinder is wanting. This circumstance,

with the general aspect of the horse—the wearing of the centre incisors, the growth and shape of the tushes—will prevent a late four-year-old from being substituted for a five. Though the incisors may be got up a few months before their time, and the tushes a few weeks, the grinder is with difficulty displaced. The three last grinders, as well as the tushes, are never shed, but come at once permanently. At “five years old off,” the corner teeth are still but slightly worn, and the margins inside are rounding. Much of the original stony crust (*crusta petrosa*) is remaining, and the enamel, where bare, is transparent and pearly. The corner nippers are so clean in their coat and mark as to procure them the name of “shell-teeth.”

Six Years Old.—At six years the corner teeth seem set more firmly, the enamel mark is irregular, and the edge uneven. The teeth, too, are getting more square on the external surface. All the edges meet with accuracy. The semi-circle which the teeth formed in the fifth year is widened out. The mark in the centre incisor is now growing indistinct. There will still be a difference of colour in the centre of the tooth. The cement filling the hole made by the dipping in of the enamel will present a browner hue than the other part of the tooth; it will be evidently surrounded by an edge of enamel, and there will even remain a little depression in the centre, and also a depression round this case of enamel; but the deep hole in the centre of the tooth, with the blackened surface which it presents, and the elevated edge of enamel, will have disappeared. Persons not much accustomed to horses have been sadly puzzled here. They expected to find a plain surface of a uniform colour, and knew not what conclusion to draw when there were both discolouration and irregularity.

In the next incisors the mark is shorter, broader, and fainter; and in the corner teeth the edges of the enamel are more regular, and the surface is evidently worn. The tush has attained his full growth, being nearly or quite an inch in length, convex outwards, concave within, tending to a point, and the extremity somewhat curved. The third grinder is fairly up, and all the grinders are level. Mr. Youatt says: “Now, or perhaps at a period of six months before, the horse may be said to have a perfect mouth. All the teeth are produced, fully grown, and have hitherto

sustained no material injury. During these important changes in the teeth the animal has suffered less than could be supposed possible. With children, the period of teething is fraught with danger. Dogs are subject to convulsions, and hundreds of them die from the irritation caused by the cutting or shedding of their teeth; but the horse appears to feel little inconvenience. The gums and palate are occasionally somewhat hot and swollen, but the slightest scarification will remove this. The teeth of the horse are more necessary to him than those of the other animals are to them. The child may be fed, and the dog will bolt his victuals, but the food of the horse must be well ground down, or the nutriment cannot be extracted from it.

Seven Years Old.—At seven years, although the corner teeth do not decidedly show age, they give further proof of wear. The teeth are yet whiter, the tushes are fully up, the mark is disappearing from the four central nippers, and is on the go in the corner teeth. The tushes, too, are changing shape, rounding at the point, at the edges, and inside; and the teeth generally seem beginning to “crowd one another.”

Eight Years Old.—At eight years the processes above noted are still in progress. The “beans” are gone from the bottom incisors; in short, as the phrase goes, “the mark is out of the mouth.”

And now steps in the most common and vulgar of frauds, that of “bishopsing,” as it is termed, from the name of the rascal who invented it, or was its most extensively known practitioner.

There are two modes by which this is effected. The eight- or nine-year-old is thrown, and the teeth are simply touched with a red-hot wire, which makes a black mark at its point of contact. This is a very clumsy and inartificial imitation. The more general one is to gently scoop the softer ivory in the cavities with an engraver’s tool, and then to darken the spaces thus hollowed. Remember, however, that the shape of the table of the old tooth, with its inner edge of enamel, cannot be altered, nor can the line of enamel which surrounds and lines the infundibulum (or pit) be preserved. This coarse expedient cannot impose upon a veterinarian, or an experienced horseman. It will be as well to look at the upper nippers, as there the very marks which, without fraud, would be found strongest and best defined, will be found

weakest. The diffusion of the "black," too, at once strikes the practised eye as unnatural.

Twelve to Twenty Years Old.—It is a generally received opinion that after the disappearance of the mark from the outer incisors, at the eighth year, all certainty with regard to the horse's age is over. As to the marks, this is true; as to other criteria, enlarged research has shown it to be only partially so. The teeth increase in obliquity, and apparently in length. From birth to six years the study of the regular progress of the development of the mouth has almost the character of an exact science, and the age to a year can be pronounced. At the period we have now arrived at, mere generalities supply the place of particular marks; and further than the fact that the horse is old, growing rapidly old, prematurely old, or, on the contrary, sound and good, his years being taken into account, our chart-knowledge does not exactly guide us. We think, however, that the characteristics of the mouth at twelve and, say, twenty years are sufficiently distinctly marked to enable an approximate judgment, if not a confident and exact one. Some Continental writers of eminence resort to the upper nippers as showing the "mark" from the ninth to the twelfth year, but we must confess we have little faith in their guidance in this respect. We may, however, note incidentally that the "bars" of the mouth become less and less prominent as age draws on, first losing rugosity about the ninth or tenth year, and becoming less prominent with advancing age. We may note that stabled horses kept on hard meat do not, as might be expected and has been asserted, show an earlier diminution of less rugosity of the palate than grass or softer-fed animals; this may be due to the active stimulation of a part well calculated to keep up its bulk and healthy renewal by its numerous blood-vessels and its protected position.

The indications of age connected with decay are not equivocal, but show themselves in the sunken eyepits and dimmed eyeballs. In such an one the lips will also be thin and pendulous, the under or hinder lip extremely so; the anus, not wedged up by interstitial matter heretofore, and not sufficiently retracted by its weakened muscles, now projects considerably. The grey horse becomes white, and the darker colours become intermixed with grey, particularly about the head; the bony processes in every

part of the body stare out, and give a rigidity of appearance which well accords with the actual state of the body. So much greater is the absorption of parts now than their increase, that even the diseased deposits of more youthful times, as windgalls and bony exostoses, are lessened or disappear altogether; the mouth likewise will present some appearance beyond these noted by the French writers. The incisors are sloped outwards and project, the upper corner one is often sawed in two parts by the action of the lower, which, in turn, loses its outer edge by the wear; the whole of the teeth become yellow and stand wide apart at the roots, which are gradually being thrust up out of the jaw by the filling up of the alveolar cavities with bony deposit.

It is an absurd piece of pedantry, as every horseman knows, to date the decay of a horse from his becoming "aged" in professional phrase. At seven and eight he is in his full bloom of his strength and fully matured powers, and, but for inordinate or premature hard work, is at a point of perfection which will last in full vigour for a period corresponding with the more extended manhood of the human being. A short parallel will elucidate our meaning, and show the error of allowing the idea of eight years as fixing the period of decay in the horse.

Blaine is here our authority: "A very considerable attention to the subject, over a wide field of observation, has impressed the writer with the propriety of drawing the following comparison between the ages of horses and men; that is, at these several periods of comparison, the constitution of horses and men may be considered as in an equal degree of perfection and capability for exertion, or of debility and decay, according as youth or age preponderates. Thus, the first five years of a horse may be considered as equivalent to the first twenty years of a man; or thus, a horse of five years may be comparatively considered as old as a man of twenty; a horse of ten years, as a man of forty; a horse of fifteen, as a man of fifty; a horse of twenty, as a man of sixty; of twenty-five, as a man of seventy; of thirty, as a man of eighty; and of thirty-five, as a man of ninety. So far from this comparison being too much in favour of the horse, we are disposed to think it too little so. Horses of thirty-five years of age are as common as men of ninety, provided it be taken into

account that there are at least fifty human subjects for every horse; and unquestionably, a horse of forty-five is less rare than a man of a hundred and ten."

CHAPTER V

THE STABLE

As stabling the horse is primarily a deviation from nature, it follows, as an inevitable sequence, that it often paves the way to disorders unknown, or varying in character from those of the animal in its aboriginal state. This tendency can best be obviated by judgment, care, and sedulous attention.

Space is an important element in stable arrangements. "Single-headed" stables, that is, those that have but one row of stalls, should never be less than twelve feet wide; while "double-headed" ones should be twenty-four feet, with six feet six to seven feet each stall, by six feet wide. "Stable architects," says Mr. Stewart, in his clever work called "Stable Economy," "have not much to boast of. Their sole ideas are limited to shelter and confinement. If the weather be kept out, and the horse be kept in, their objects are attained. If light and air be demanded, the doorway will admit them. If the horse has room to stand, it matters little though he have none to lie; and if you can get him into the stable, what consideration is it though his loins be strained, or his haunch bruised, in getting out of it?" Narrow stalls are highly prejudicial to horses; back-sprains are often produced by them in the attempt to turn the horse in his stall. Whenever this is less than six feet wide, caution the groom always to back the animal out of it. Swinging bars or bails are highly objectionable, from the temptation to horses to play with each other, and to kick under or over them, according to height. They are also objectionable, inasmuch as horses vary as much as human beings in quickness of eating, and the tardy masticator gets robbed of his food by the rapid swallower.

Heat and cold should be graduated by the thermometer; the feeling of a groom or owner is a very fallacious guide. In summer 65° to 68° as a maximum, if possible, and in

winter never below 50°. With horses, however, that must be kept up to the bright coat, we may spring a few degrees, and say 68° as an average. As temperature is intimately mixed up with ventilation, and that with light, it is desirable to have the stables sufficiently airy without cold or draughts.

It is taught in the old books that the horse, and the blood-horse especially, being originally the denizens of a torrid country, require not only warmth but heat in this northern latitude. This notion was formerly carried to a most mischievous extent. Moderate warmth is doubtless congenial to all horses; but a high temperature is only permissible in a stable to produce and maintain the artificial state to which our summer-flyers of Oriental descent are brought for their few speedy strides over the turf, on the rare occasion of their carrying the silken jacket and its light-weight wearer. Such animals have their clothes on when led or ridden to paddock, or tan-gallop, close to the door of their country seat whereat they train and exercise.

Nevertheless, even in this exceptional class, the excessive heat, especially in stables where there are several horses, is by no means necessary or beneficial even to the horse of stainless blood. Many of these have we seen—the more the pity!—who, worn by age, lameness, or accident, or perchance rejected for vice, engaged in the meanest and hardest service; as well as exposed in all weathers, working in a hansom cab! Yet do such unfortunate outcasts from aristocratic horse-palaces adapt themselves to circumstances, and live to the average period of the fashionable racer; proof positive that the respiratory and secretory organs had kept their efficiency under all the variations of temperature of our variable climate.

In confined stables, where the same air is breathed over and over again, and where the heat exhales unwholesome effluvia from every excrementitious matter, to clog the lungs and prevent the due oxygenation of the blood, where, too, the very food is deteriorated by these exhalations, we have a large percentage of the diseases which go to swell the treatises and lengthen the bills of our veterinary professors. The improvements in the ventilation of the stables of our cavalry horses have, of late years, wonderfully diminished inflamed lungs, with its perpetual *v. s. (venæ sectio)* in the

veterinarian's diary. Grease, glanders, and farcy, too, have decreased in a like ratio. When any epizootic is raging, it is always found to be most severe and intractable in crowded stables. Thus when on board a transport during a storm, the standings of some cavalry horses were of necessity battened down, acute glanders immediately broke out among them, and carried almost all of them off; the principal cause of the mortality arising from their own exhalations. With a full conviction, then, of the prime necessity of rendering stables moderately warm, but yet more of the importance of their thorough ventilation, especially where the standings are numerous, we pass to the general construction of a stable.

Although stables have not always choice of situation and aspect, these are often neglected where they are at command. A south-eastern aspect for doors and windows is preferable; as dampness of the walls, too, is a fruitful cause of disorder, some of the methods adopted in dwelling-houses are worth consideration. Rising damp is a great generator of miasma, and may be checked by a course of stone laid in cement, a sheeting of zinc laid on thick plank, or in coal districts by a quantity of coal ashes or dust, the least expensive of all. This is for the footing of the outer wall. We need hardly dwell on the advantages of a dry stable when the evils of a damp one are so apparent; coughs, swelled legs, a rough staring coat that defies the wisp and the hissing of the groom, are its constant concomitants. In some cases a stove-pipe passed through, or strewing the stables with saw-dust or sand, may palliate the mischief.

Nimrod recommends that there should be no more than four stalls in a hunter's stable, and that these should have three horses, being on one side only; the centre partition of two being removable, so as to make a loose box 12 feet by 7 feet; the stable itself 16 feet wide. A pair of carriage-horses, in like manner, should have three stalls; the spare one will be found as useful as a spare bed in a house, in case of emergency; one of the partitions also shifting so as to form a loose box for an invalid. Coach-horses, however, are generally in a double row, which takes a general width of 20 feet from wall to wall. Each stall 6 feet 6 inches to 7 feet, by 6 feet wide. Large cart-horses will need yet more room.

The walls should be stone or brick, the latter the best

and 9 inches thick at the least—13 inches are better. They may be plastered or boarded, the latter the best, up to three feet from the manger, and plastered above: although a smooth-dressed wall is as good as either for utility. The stable should be lighted from above, if possible, or if it is a single-headed one, from behind the horses' standings: this avoids glare. If the hayloft is above, lighting from the roof will of course diminish its capacity, but this is of minor importance. The ceiling must be plastered, firstly, to prevent the impure nitrogen and ammoniacal gases from ascending to the hay and vitiating it; and secondly, to prevent the hay-seed and dust from falling into the horses' eyes. White, the veterinarian, approves of an unplastered tiled roof (where there is no loft above); but Stewart, a much better authority, condemns this for any but the commonest of agricultural horses. Where there is a loft above, 8 to 9 feet are a good height for the ceiling; which when too lofty is cold, when too low requires draughts and currents to too great an extent to be safe for the horses' lungs and skin. Where there is no loft, the height should be greater, or the stable ceiled, otherwise the tiles and slates will make the stable an oven in summer, and snow on the roof convert it into an ice-house in winter.

The importance, then, of avoiding sudden and extreme alternations of heat and cold must be one of the points studied in the construction of a healthy stable. It must, however, be admitted that the renewal of the air in a stable is indispensable to the well-being of the inmates; and the question is—how this can best be effected.

Pure air, then (and, as an accessory, cleanliness), being a prime necessity to the health of domesticated animals, those who desire a healthy steed will see to these most important points. As a simple mode of attaining a full supply of pure air, two sets of apertures are necessary: one set in the upper part of the stable, for the escape of the impure and heated air; another close to the floor, to admit the pure and unexhausted air. These latter openings must be so contrived that the air on entering shall not be directed in a current on any part of the horses, but diffuse itself gradually throughout the stable. The same rule must be observed in the upper ventilating apertures; and, as the air which has been expired ascends in a direction perpendicular to the horizon, these apertures should be placed upright.

When this is not easy to affect, then they should be as near the ceiling and as far from the horse's nostrils as possible. They may be made oblique, which will give exit to the current of heated air, and protect the stable from rain and wind. But as, owing to the construction and confined situation of some stables, or from floors above, these openings cannot be made, then small tubes may be opened into the stable, in the ceiling, or as near its height as possible. These may be carried into a flue to the top of the building, or outwardly with perforations in the wall.

We cannot quit the subject of ventilation without endeavouring to impress on the reader the importance, nay, the indispensable necessity of a clear comprehension of its influence on the animal economy. The respiration must not be considered, as is too often taught in elementary handbooks, as a mere chemical process—a simple combustion in the lungs, in which the oxygen of the inspired air unites with the carbon of the blood, to form carbonic acid, and then be expelled from the system. Respiration is a function much more complex; it consists of absorption and exhalation—the attributes of all living and breathing beings: and, further, in the assimilation of two constituents of the air, oxygen and azote. The living principle is, then, *par excellence*, the *breath*, and through that the *blood*. The vital principle, then, is more readily acted on by the lungs receiving *impure air*, instead of its natural food, *pure air*, than by any other circumstance whatever. The lungs, let it never be forgotten, are a second stomach, and the respiration but another form of digestion. When food enters the stomach, its nutrient parts are separated and converted into chyle; when air enters the lungs, its vital properties are separated to repair the waste and purify the blood which builds up the animal system. If the stomach receive impure and unwholesome food, disease is induced; if the lungs receive effluvia from decayed animal or vegetable matter, instead of pure atmospheric air, then also the system becomes diseased.

Glanders and farcy may be adduced as proving this fact. Both these diseases are originated by breathing aerial poisons, and the disease of the blood is the cause of the disease of the solids. When a horse is infected with the disease called the glanders, he will be found also farcied. The poison at first develops a local disease, which after a

time travels through the system. In the case of direct inoculation with the virus, how is the poison conveyed to the other parts from the original sore but through the agency of the contaminated blood?

Quitting, however, a strict medical view of the evils of a want of judicious ventilation, we would ask any sensible man to enter one of these hot and pestilential stables at early morning—when the breath of its quadrupedal occupants has become an almost putrid exhalation, and the reeking atmosphere damps and saturates the walls—and ask him whether such an atmosphere must not impair vitality, deprive the blood of red colour, and thereby render it unfit to stimulate the heart and feed the other organs through which it circulates. Reflect, too, on the deterioration of the stimulus to the energy of the brain, and thence its evil effects on the digestion, circulation, secretions, and eventually on the wind, endurance, soundness, and temper of the animal, and you will surely see to this important element in the construction of your stable. Mr. Karkeek, whose researches on aerial poisons are worthy perusal by every one who loves and values his horse, says on this point: “We have frequently observed a kind of balance between the respiration and the digestion; and he who is a careful observer of horses in a healthy as well as diseased state must have noticed that there is a certain balance between the quantity of vital air received into the lungs, and the quantity of food which can be digested in the stomach.”

Light.—Immediately connected with the subject of ventilation is the kindred topic—light, on which we now propose to say a few words.

Did the reader ever emerge suddenly from a dark cellar, or cave, or some place whence the sun's rays being excluded, the “palpable obscure,” the “darkness visible,” had dilated the eye to its utmost, in the endeavour to distinguish surrounding objects? Let him recall the painful giddiness of the distressing interval when the eye was suddenly called on to contract, and to accommodate itself to the bewildering glare. Now suppose, further, at that instant a stranger, or even an old friend, had saluted you with a hearty clap on the shoulder, and an exclamation such as “Halloo, old fellow, you seem all abroad!” Should you consider yourself highly to be reprehended, nay, more, deserving of corporal punishment, if, under such circumstances, you

started with surprise, mingled with some alarm and bewilderment?

Well, then, we have often seen this very thing done to an unfortunate horse. Confined for hours in a stable, with just so much light as will suffice to render the outlines of objects visible after the eye has fully adapted itself to the gloom; the principal aperture for the admission of light—the door—is suddenly opened, the groom enters, and the coach-horse or hackney is led forth to be dressed. The horse is, for a few seconds, nearly blind, and painfully so. He strikes his haunch or stifle against the bar or the door-post, and instantly is sworn at for his awkwardness; next moment he starts from nervousness at the approach of some, to him, indistinct object, and he is pronounced a “starter,” “uneasy to groom,” etc., etc.; this character established, he is, upon such occasions, in the absence of the master’s eye, treated to various little kicks and cuffs, and sly knocks, with a running accompaniment of objurgation. Can there be imagined a more efficient course of education to produce “starting,” a threatening or vicious attitude, or any of the other abominable habits to which imperfect vision and its attendant panic fear are calculated to give rise?

Then, again, the darkness of the stable is, we need hardly say, a cover for and a promoter of uncleanness. A good large glazed window or two in every middle-sized stable would show the inattention or the neatness of the attendant. Darkness also greatly encourages the fermentation of the litter, and the evolution of the pungent ammonia so injurious to the eyes of the horse, leading often to inflammation, thence to blindness.

If, on the other hand, the stable has plenty of light, then the part of the wall which is opposite to the horse’s face, and which from either side throws its refracted rays on the animal’s eye, should not be of a glaring colour. The reflection of a whitewashed wall, where, from its aspect, the sun shines into a stable, is as injurious to the sight as the sudden alternations of which we have just now spoken. The stimulus is most mischievous, as the unfortunate animal is so situate as to be unable to relieve itself by a glance over a verdant landscape, or have the comforting sight of a brown or drab road, rock, or common. Some time ago, “ye ladye superiour” at one of the new-fangled abodes of

religious misery and cruelty where dwell "sisters of mercy," took it into her head, as a penance for "wandering thoughts," to sentence a young devotee to sit opposite a blank white-washed wall for a certain number of hours per diem. The result was not exactly what was intended; the poor girl's eyes inflamed, the white wall became blood-red to her tortured vision, and she went incurably blind. This is an extreme case; but how many horses may owe their loss of sight to a want of care in this respect by their masters and their grooms? The fading light of day will usually bring the hour of rest. When, however, the hours of the horse's labour are at night, something approaching the dimness of twilight seems most grateful and natural to the animal, and to induce feeding and repose.

The Floor.—As to the slope to be given to the floor of each stall, many of the older stables have an undue declivity to the drain; although the rapid carrying off of the urine is certainly desirable, yet too rapid a slope strains the back sinews, and is not an unfrequent cause of occasional lameness. Mr. Lawrence illustrates this by a clear example, founded on a just observation of the horse's foot as compared with the human leg. "If the reader," he says, "will stand for a few minutes with his toes higher than his heels, the pain he will feel in the calves of his legs will soon convince him of the truth of this remark. Hence, when a horse is not eating, he always endeavours to find his level, either by standing across his stall, or else as far back as his halter will permit, so that his hind-legs may meet the ascent on the other side of the channel." Blaine, too, judiciously remarks:

"In the stables of dealers in carriage-horses, an ascent in the standings of nearly two inches in the yard is sometimes made, to give a greater appearance of height to the yet unfurnished four-year-old horses, which are thus often passed upon the unwary as horses of five years old. Is no strain put upon their legs? Our experience, which has been somewhat extensive in these matters, convinces us that the inequality in the standings of horses is a fertile source of contraction of the feet. What but the pain and inconvenience which follow an uneven position occasions horses, when not feeding, to be so frequently found standing across instead of lengthways in their stalls? How frequently also will the horse boxed in a stall be found with his croup turned towards the manger? To avert these evils, and yet

to prevent the retention of the urine, the smallest possible slope should be allowed, which would proceed uniformly to the bottom of the stall. A central grating with a cesspool is an imperfect remedy for the evil; for there must still be a general inequality of surface to carry the urine to the centre. It is further injurious by retaining the urine we wish to avoid, and moreover, it promotes a draught of cold air from without, if it be so constructed as to carry the urine out of doors. It may also be remarked that a central cesspool is utterly useless for mares. It is therefore the best plan to furnish each stall with a grating placed over a small trapped drain, at the foot of each stall, which will carry off both the urine and the washings into one general cesspool out of doors, and from which, being stopped by the trap, nothing offensive can pass up through the gratings."

The Loose Box.—A loose box is an immense comfort to a horse after a day's hunting, or a hard journey in saddle; he can lie in any position that he may find gives the greatest ease to his wearied limbs; and if put into one the night before he is to go hunting, it ensures him a sound night's rest undisturbed by other horses, or persons passing through the place. It is true that this luxury of stretching their legs is not required constantly or generally by horses; for though, after a hard day's hunting, a horse may, at times, be found lying on his side, with his legs stretched out at full length, he must be very tired or very ill to have recourse to such an unusual position. The reason for this is that the roundness of a horse's ribs is such that it is a most uncomfortable and unnatural position for him to lie on his side for any length of time. A horse in good health, under ordinary circumstances, will never be found on his side; he is either ill or has had an accident when you find him so. Having said so much on the formation and structure of boxes, and having pointed out under what circumstances they are most needed, let us see how far they are applicable and useful in general stable practice.

We need not insist upon the fact that the habit and disposition of the horse are those of a very social animal; and although being quiet and alone may at times be good for him, as it is to a sick man, yet solitude, if long continued, is a severe and irksome punishment to him. Anyone who has watched the "knuckering" of a horse when his companions return to him after an absence—his silence

and uneasiness when left alone, and beyond earshot of some signs or sounds of their whereabouts, is remarkable ; and equally so is the general disposition of the animal when at liberty to indulge in that rough sort of amusement which has obtained the proverbial appellation of "horse-play." Of his desire for mutual amusement you may soon have a proof by placing him in a loose box, with the upper part of the door of iron rods, so that he can watch passing objects, or be on the look-out for them. You will find him, when not in the act of feeding, with his nose close to the bars, and taking as good a peep as he can get of the outside world ; and if you open the top door entirely (don't do this if you don't know your horse intimately) he will be found for half the day with his head and neck thrust out of it, surveying so much of the moving scene and of man's doings as his horizon will take in. That he is amused and observant, if not reflective, anyone who watches his action and eye can see.

Someone may remark that race-horses live constantly in boxes, and do excellently well ; but a race-horse is an exceptional animal. He is bred, trained, and treated in a way peculiar to the high caste to which he belongs, and though we have had a Derby winner in a street cab, the race-horse, while he is a race-horse, is kept in a box. He is accustomed to such quarters from his colthood, and his instinctive social qualities are deteriorated thereby, whatever may be done for his speed. Instead of associating with his species, he has no real companions. He does not miss his playfellows—he never had any. Instead of missing them or welcoming them, he kept aloof from them ; he is, says a clever writer, in a purposed Hibernicism, "a sort of *domesticated wild* beast, kept to run for money." Though he is not a "wild horse," he is a "solitary horse." He is brought up upon the "separate" if not the "silent" system of prison discipline ; the desire for companionship is dead within him—he is a quadrupedal anchorite, and does not care for his kind.

Horses, in general, do better in stalls than in boxes, unless in boxes with racks only between them and their next neighbours. Whatever rural sight or sound cheers the spirit of man, seems to cheer the horse also. Again, horses feed much better from hearing others eat ; and in many instances where a horse, especiauly after a hard run,

would not touch his corn, if in solitary confinement, he will set to grinding when he hears others masticating their provender.

There are strong advocates among many of our practical men for keeping valuable horses in boxes; they certainly permit the animal to stand or lie down at pleasure. There is no danger of their getting cast or getting loose; in which case, though horses are social animals, the intrusion into the stall of another horse, by the animal who has got loose, has often produced not only confusion, but the most serious accidents. The term "boxes" is not, however, quite applicable to the places we recommend, they are rather "compartments" for horses. These should be made seven feet high at the rack and manger, and for a yard from the wall, then five feet for the rest of the side, and merely of bars, so closely placed that a horse's nose could not be put through them. These should be of iron. A space for passing should be left behind these compartments—we should say of five feet. The railing at the end should be of wood or iron, so as to give a convenient view of the horse. It may seem superfluous to say that the door should open outwards, and be made so as to fall back, close on the other railings; this will save the horses from bruises in passing in or out.

THE STABLE FITTINGS.

The furniture and fittings of the stable, keeping in view the comfort of the animal, which is no small aid towards "good digestion waiting on appetite, and health on both," comes next into consideration. The neatness, cleanliness, and convenience of the various articles and appliances which modern ingenuity and constructive skill have placed at the disposal of horse-owners are not their least recommendations.

Although handsome, serviceable, and really good fittings are made throughout town and country of sound hard wood and hammered iron, yet there can be no disputing the superior patterns, the greater cleanliness, durability, healthiness, and convenience of the galvanised, enamelled, or componised iron mangers, water or gruel troughs, racks, etc., now advertised in all parts of the kingdom.

We need hardly repeat that the old sloped hay-rack of

the farmer's stable, filled from above, and from which the horse so wastefully dragged his provender, to the damage of his eyes and nostrils, is utterly condemned, and should be cast forth wherever it yet lingers, and its place supplied by an under-feeding square or corner rack. The obvious defects of the first-named vile contrivance are that the horse acquires the habit of pulling down the greater portion of his hay, with the view of culling, with his fine and sensitive upper lip and his delicate organ of smell, the sweetest and most succulent locks. Hence, much of his provender is trampled under foot; and, though a hearty-feeding horse will afterwards pick up a great deal of what he has thrown down, a large quantity must be soiled and spoilt. We have seen a third of the whole amount thus lost by slovenly and capricious horses. These defects led to the abolition of the high rack in all well-contrived stables, and the substitution of manger-feeding, in which chaff, composed of equal quantities of clover or meadow hay, wheat, oat, or barley straw, were mingled with the corn or beans. The animal is thus compelled to masticate his food, and cannot, especially with such well-made contrivances as those under notice, waste his hay, while the sharp straw compels a more complete chewing of the oats.

THE HARNESS-ROOM.

"Everything in its place, and a place for everything," is a motto which should be inscribed over every place where horses are kept, or at any rate be ever-present to the groom or horse-keeper. It is amazing how much needless expenditure of labour, oaths, or ill-temper—how much confusion, how much loss of time may be avoided by regularity, method, and a use of those convenient appliances which modern mechanical skill and ingenuity have placed at the command of every one whose means allow them to fit up a stable properly; and surely no other should pretend to keep horses of a good class than such as can supply them with those conveniences which are necessary to keep them up to the highest point in cleanliness, food, warmth, clothing, and even ornamental appointments.

How much of a horse's comfort depends on a well-made, well-fitting saddle, a properly adjusted rein, bit, and bridle, and the true setting of his harness horses alone can tell;

and we doubt not, had they been gifted with speech, their "tailors in leather" would have heard of many a cruel misfit, whence "galls," "raws," "sitfasts," from saddles, abscesses on the tongue, and injuries of both upper and lower jaws by the barbarous tightness of the bearing-rein, and the ill-made, ill-seated "post" of the bit. These and many minor ailments and discomforts, damaging to the health, beauty, and temper of the horse, arise from harness badly made or carelessly adjusted and put on.

The cleanliness of every part of a horse's clothing is only secondary to its goodness. A peep into a well-ordered harness-room is a pleasant sight; well-kept leather is always supple, soft, and pleasant to the feel, and how important is dryness and "elbow-grease" to preserving this useful material in that condition we need not say. If the harness and "fixins" of the horses are in prime order, we may almost safely trust that man with other details of management with confidence, as it shows he does not shirk labour or spare trouble. He must, however, be liberally supplied with the proper means of doing his work as it should be done.

Foremost of these articles we may note a stove, in conjunction with the airing and drying horse, an admirable appendage to the stable for drying and airing harness and saddles after use, and also for drying and airing horse clothing and the cloths in general use about the stable. This stove, besides warming the harness-room, will supply hot water for the use of the stable, for cleansing the horses, for equine foot-baths, bran mashies, gruel, and other purposes.

The stable appendages always required are buckets, whalebone brooms or besoms, forks, body and dandy-brushes, curry-combs, mane-combs, bandages, leathers, rubbers, sponges, foot-pickers, and scissors. If for harness horses and for cleaning carriages, there will be wanted also spoke-brushes, mops, jacks, harness-brushes, and brushes for the lining.

The lodging-room for the groom or coachman is generally over, or near, the stable; and it should, at all events, be so near as to allow of any unusual noise being heard by him, for sometimes, when a horse is cast, or has the colic, he dies for want of that assistance which could be readily given if his state were known.

CHAPTER VI

*STABLE MANAGEMENT—FEEDING—EXERCISE
—CONDITIONING*

A GOOD groom is as indispensable to the well-being of the inmates of a stable as a good whip is to their driving, good harness to their comfort, or good food to their health and condition. No gentleman can be well-carried, no family be well-appointed in their equipages, but by care in the selection of the groom or horse-keeper. Nimrod sensibly says: "The principal duties of a groom may be said to consist of cleaning—strapping, as it is called—feeding, and travelling horses. A man should have a certain degree of substance to strap a horse properly; but we do not agree with those who think an herculean monster, whose blows would almost fell an ox, a necessary article. I have seen light lathy fellows full of muscle and sinew that would kill one of these plummy, lumpy gentry. There is a wide difference between what John Warde used to describe as a man fit 'to strip a horse and starve him,' and a clean-made, light-limbed active fellow. Beyond grooming and feeding, I do not wish for much science in a servant—your pedantic, infallible-recipe fellows are no men for my money. Good strapping, and food proportionate to work, is the grand secret."

RACKING AND DRESSING.

The first morning duty of the groom is "racking and dressing." The first operation immediately follows the opening of the stable door. The hay should be first shaken to clear it from dust, and then but a small portion given to leave the horse his full powers for the digestion of his corn; indeed, were it not from a fear that the eagerness of the early appetite might make the horse swallow his corn without sufficient mastication, we should prefer giving the oats first; and when two morning feeds are allowed, we strongly recommend to commence with the corn. When this is not the case, after racking, give the usual feed of corn, which should be first well sifted and looked over, to separate any extraneous matter. The morning allowance of water is usually reserved until after dressing, but we

have known some horses who would not feed until they had drunk. We therefore advise that this time of watering be not obstinately adhered to; but that it be made to suit the appetites of the horses themselves. A careful groom will study the peculiarities of each horse, and then his own judgment will be his best guide.

You may now give his stable a slight "set fair"; that is, throw the dung off the litter, but do not disturb that just under him to raise the ammonia from his having staled thereon. We are supposing that you mean to give the horse a thorough "dressing" before he goes out. If, however, time does not serve, or there are other reasons for postponing this till his return to stable, you may "muck out" as hereafter described. We will now describe the important operation of "dressing," and would first impress upon the reader the fact that it is not only to remove soils and make the coat glossy that we "dress" a horse, but that the process is most important, when diligently carried out, for ensuring the health of the animal, by the life-giving excitement of the whole exhalant surface of the body.

Scales of scurf—dandriff—are constantly in process of generation over the whole surface of the animal's body; and the act of currying, brushing, and dressing clears off those scales, and stimulates those exhalant and inhalant pores by which excretory and noxious particles are thrown out, and air and moisture imbibed. Itching, irritation—and consequent inflammation—surfeit, and thirst, with a train of minor evils, are kept aloof from well-fed and warmly clothed horses by a diligent application of "elbow-grease"; for able physiologists have shown that the skin not only throws off impurities, but absorbs pure water and atmospheric air, at need, when kept in healthy condition. The observant horse-owner may easily satisfy himself of the fact that a well-groomed horse has more spirit, cheerfulness, and endurance than an undressed one, by a few days' experiment. With horses much in stable, too, periodical friction is *exercise without fatigue*. The curious reader may find in "The Book of the Farm" an account of the superior thriving of some pigs who were regularly curried, over those in a sty left to their own nasty ways. The writer, however, observes in defence of poor piggy, that he contracts many of those bad habits from confinement and domestication; and that the wild pig is as cleanly an animal as need be—currying

himself daily by drawing himself through bushes, brambles, etc., and industriously rubbing himself against trees. On the Continent, too, stall-kept oxen are in many places regularly curried night and morning, to the great advantage of their working capabilities.

Rub his legs exceeding well, from the knees to the cambrel-houghs, downwards, to his very hoofs, picking and dressing them very carefully about the fetlocks from gravel or dust, which will harbour in the bendings of his joints.

We cannot forbear from pressing on the minds of all who are concerned in horses that friction to the legs is both a preventive and a cure of disease. The eminent veterinarian, Delabere Blaine, thus bears testimony on this point: "Leg-rubbing prevents gorgings, which are the forerunners of cracks and grease, and disperses such accumulations as are already made. Few actions relieve the tired horse more than well rubbing his legs; and it is remarkable that whatever else a horse resists, he very seldom resists this. Further, whenever a horse comes home in a dirty condition, it is prudent first to attend to his legs and feet, which should be well washed; but when the weather is frosty, it should be done in tepid water: it is essential to his health, and it also affords him much comfort and refreshment. We know how grateful it is to ourselves to put our feet into water after great fatigue; and we cannot but observe by their manner, also, that it is the same to them. The feet of horses require also daily examination; they should always be well picked out whenever they come in, to remove stones and dirt which may have lodged between the shoe and the sole; and which, if suffered to remain but a few hours, might do irreparable injury. The state of the shoes should likewise be looked to every morning, not only as to their actual wear, but also to see that the clenches do not protrude to cut the legs, or that the shoe may not have gotten awry, or become loosened. Whenever a set of shoes has been on three weeks, particularly where the hoofs grow fast, even if such shoes be not worn out, they should be removed; for in every instance, as soon as the horn of the foot grows too high, it begins to contract; and there are more horses ruined by standing too long without paring down the hoof than by all the bad shoeing that is practised."

Watering should follow dressing, and then a second feed

of corn, where four feeds per day are customary ; but, if not going out to work, merely put hay in the rack.

Litter.—A few words about “litter.” We have already mentioned the pungent ammonia which arises so rapidly in a close and heated stable, to the detriment of the respiratory functions of the animal, and the damage of the hay in the loft above. As much of the litter as has been wetted and softened by the urine must be removed every morning, a little being left for the animal to stale on, as some animals object to and are uneasy at the splashing which takes place on the bricks or cobble-stone pavement. No heap of fermenting dung should ever be allowed in any corner of the stable; upon this point the master should be inflexible.

Whether horses should be allowed to stand upon litter at all during the day is a subject on which opposite opinions have been entertained by practical writers. When the litter is suffered to remain, it certainly encourages the horse to lie down, which is favourable to the recovery of strained or overworked limbs, and prevents extreme pressure on tender feet, if the stable should be bricked or paved. But, *per contra*, foul-feeding horses are very apt to eat their litter, and the other mischiefs from acrid exhalations, elsewhere spoken of, are multiplied. With some horses, too, the very disorder it would seem to alleviate is produced or aggravated by it—namely, swelled legs, which have been found to return to their proper size when the stimulus of warm litter was removed. Litter, when neglected and allowed to heat, is mischievous to the horny hoof, which is contracted by the increased temperature. We would recommend a little only of the litter to be left under the fore-feet during the day, and in the summer that the bricks should be lightly watered to keep them sweet and cool. Fresh green rushes, if they can be procured, make an excellent day litter. In many stables on the Continent, and some of our racing establishments, the floor is of wood, cut across the grain; this, and hard “compo,” are not bad for the purpose, with tan, a coat of sawdust, or a thin layer of straw, spread upon the floor of the stall.

FEEDING.

Feeding is a matter of observation, and requires study and attention. Most servants are so fond of stuffing themselves that they think horses must be equally so. Stuffing may do with a cart-horse, but will not answer with a hunter, or a horse required for quick, strong work. A groom should study each horse's appetite and constitution. Some horses require far more meat than others, but this truism never enters the head of most of the fellows calling themselves grooms. Having ascertained the "maximum" quantity of corn master allows, they forthwith prepare for getting it down the horses' throats in equal proportion. A half-finished feed conveys no hint to them: they add a whole feed to it next feeding hour: then horses get cracked heels and swelled legs, and the fellows wonder how it happens. They perhaps have recourse to their antediluvian book, or some horse leech in the neighbourhood, who cannot even write out a bill for the medicine he professes to give. Bleeding and physicking should be included in a groom's catalogue of qualifications; but never allow either to be done without an order.

Some grooms say they cannot keep horses in high condition without high feeding; but many masters would ride much more pleasantly if their horses were not in such high condition. What is the use of having a horse capable of double the exertion the rider is equal to? We are not all Osbaldistones, to ride two hundred miles in nine hours; and whether on the road or in the field, a horse above himself is a great nuisance.

Lord Pembroke truly observes, that "it is a matter of the greatest consequence, though few attend to it, to feed horses according to their work. When the work is hard," says he, "food should be plenty; when it is otherwise, the food should be diminished immediately, the hay particularly." That sentence should be placed in every stable and saddle-room in the kingdom.

Hay.—The principal food of horses in the stable is hay and oats, and consequently it behoves every master of horses to be a good judge of their quality. The hay given to your horses should be old upland meadow hay, bright, greenish, fragrant, and not too dry and crisp; it ought.

indeed, to be, in a trifling degree, tough, and not to crackle when twisted in the hand, thereby denoting that it has preserved its juices and nutritious qualities. Many people are in the habit of never giving any other than meadow hay to their horses, but this is not at all necessary. Provided the quantity of hay you allow your horses in the day be not too great, they will be gratified by a slight change in their diet now and then; and you may with great propriety let them have an occasional handful of sainfoin hay, or of white clover and bents (rye-grass), though most grooms will assert that by so doing you will ruin your horse's wind. Those who say so, however, have never made the experiment themselves, or have made it improperly, by allowing their groom to stuff a horse with hay until he is surfeited, or by giving it in too new a state, when it will produce acidity and flatulence. The allowance of hay for each horse is, in most stables, two trusses per week; one-half this quantity is sufficient. Eight pounds of hay per diem is as much as any horse should be allowed to eat, and those who give them more go the right way to breed listlessness, dulness, and disease. Of all animals the horse, in comparison to his size, has the smallest stomach, and consequently his food, when hard work is required of him, should contain as much nutriment as possible in the smallest compass; for remember that the origin of impaired digestion, and consequently the cause of most diseases, is distention of the stomach and bowels, by which they become debilitated, and their secretions vitiated; the natural and inevitable result of which is general weakness of the whole system.

How can any horse possess vigour and sprightliness who is allowed to swallow as much hay at a time as he will eat, when a large quantity of this species of food does not contain sufficient nutriment of itself to keep a horse in condition? The food of horses, whatever it may consist of, should at all times be small in quantity, and of the very best quality; for as we require great exertions from them, so must we take the best means to provide them with the most nutritious sustenance without over-taxing their powers of digestion.

Hay that is at all mow-burnt is liable to produce gripes or flatulent colic; as likewise is that which has been recently made, and has not, as it is called, completely

"sweated" in the stack. Indeed, horses that are expected to perform hard work should never be allowed to eat hay less than eight months old. Some people like it better when two years old; it is then, however, little better than so much straw.

Oats.—Your oats should be at least a twelvemonth old, bright, clear, full, without smell of any kind, and weighing at least forty pounds per bushel. Many people prefer black oats to white; provided the weight of both be equal, and they be equally well kept, it matters little which of the two you use—horses will work as well when kept on the one as on the other. Nevertheless it is certainly a difficult matter to obtain black oats of as fine a quality as the white potato oat, inasmuch as they will generally be found to contain more "heads" and "tails" than the latter; and therefore those who are not simply satisfied with good oats, but will procure the very best, will be more likely to find the great desiderata of weight and plumpness in some species of the white than in the black oat. A horse of good constitution, and in regular and moderate work, should not have less than four quarters of oats (weighing forty pounds per bushel) in the course of the day. Oats of the above weight may be thus given by measure, and they are by far better than a larger quantity of oats of less weight. It is the most absurd plan to feed a horse by measure without reference to the weight of his corn. It has frequently been found, on examination, in the stables of gentlemen who never choose their own corn, but suffer a corn-chandler to send them what he pleases, that their horses have been feeding upon oats that to all appearance were little more than the light seeds blown aside by the winnowing machine, and only fit for poultry. No horse can, of course, be expected to thrive and stand his work upon such diet: therefore be particular, when you purchase oats, to see them weighed; and for this purpose turn out one-third of the oats in the sack, and weigh a bushel from the middle, for here you will often find them of an inferior quality, both as regards weight and cleanliness.

If you work your horses hard, they must be allowed either a larger quantity of oats than here specified, or you must mix with them a few handfuls of old and sweat beans. This is good, hearty food for a horse of strong constitution; but some horses of a foul habit of body will not endure

being fed for any length of time on beans without exhibiting symptoms of heat of body somewhere—generally by greasy or cracked heels, or by scurf and surfeit. With a horse of this description you must every now and then—say three times a fortnight—adopt the plan of giving half a pailful of bran mash instead of a feed of corn, giving him at the same time half an ounce of nitre in his water; or you may add a double handful of dry bran to his oats every day, or whenever the state of his bowels requires it.

Peas.—Peas are a very good substitute for beans, and, according to the analysis which has been made of both, contain rather more nutritious matter than oats in a given quantity. They are not, however, in general use. A small quantity of barley added to oats is by many recommended as excellent food for horses; we can say nothing respecting it from personal experience.

Barley.—Barley is still a common food of the horse on the Continent, and, until the introduction of the oat, seems to have constituted his ordinary stable food. It is more nutritious than oats, containing nine hundred and twenty parts of nutritive matter in every thousand. There seems, however, to be something necessary besides a great proportion of nutritive matter, in order to render any substance wholesome and strengthening. Except where horses are very hardly worked, barley does not seem in our country to agree with them so well as oats; they are more subject to inflammatory complaints, and particularly to surfeit and mange. When barley is given, the quantity should not exceed a peck daily. It should be always bruised, and the chaff should consist of equal quantities of hay and barley straw, and not cut too short. If spotted barley is given, it will probably produce serious illness among them. For horses that are recovering from illness, barley, in the form of malt, is often serviceable, as tempting the appetite and recruiting the strength. It is best given in mashes; water, considerably below the boiling heat, being poured upon it, and the vessel or pail kept covered for half an hour.

Grains.—Grains fresh from the mash-tub, either alone or mixed with oats or chaff, or both, may be occasionally given to horses slow at work; they afford very insufficient nourishment for horses who are called on for smart exertion.

Wheat is in Great Britain rarely given to horses. It must always be bruised and given in chaff. Wheat contains

a greater proportion of *gluten* than any other kind of grain ; with the horse it is difficult of digestion, and apt to form obstructions in the bowels. This will often be the case if the horse is suffered to drink much soon after feeding. Wheaten flour, boiled in water to the thickness of starch, is given with good effect in over-purging, especially if combined with chalk and opium. There is no grain, however, that seems to agree so well with the constitution of the horse as the oat.

Beans add materially to the vigour of the horse. There are many horses that will not stand hard work without beans being mingled with their food, and these not horses whose tendency to purge it may be necessary to restrain by the astringency of the bean. There is no horseman who is not aware of the difference in the spirit of his horse if he allows or denies him beans on his journey. They afford not merely a temporary stimulus, but may be daily used without losing their influence or producing exhaustion. Beans are generally given whole. This is absurd ; for the young horse, whose teeth are strong, seldom requires them ; while the old horse, to whom they are in a manner necessary, is scarcely able to masticate them, swallows many of them whole, and drops much corn from his mouth in the ineffectual attempt to break them. Beans should not be merely split, but crushed ; they will even then give sufficient employment to the grinders of the animal.

Tares.—Of the value of tares, as forming a portion of the late spring and summer food of the stabled, and especially the slow-worked agricultural horse, there can be no doubt. They are nutritive, and they act as a mild medicine. When surfeit lumps appear on the skin, and the slow-worked horse begins to rub himself against the divisions of the stall, and the legs are turgid, a few tares cut up with the chaff, or given instead of a portion of the hay, will often afford relief. Ten or twelve pounds may be given daily, and half that weight of hay subtracted. It is an erroneous notion that, given in moderate quantities, they either roughen the coat or lessen the capability for work.

Lucern is by some agriculturists considered preferable to tares, and sainfoin superior to lucern. Although they contain but a small quantity of nutritive matter they are easily digested and perfectly assimilated ; they speedily put

both muscle and fat on the horse that is worn down by labour, and are almost specific for hide-bound. Some farmers have thought so highly of lucern as to substitute it for oats. This may do for the agricultural horse of slow work, but he from whom speedier action is required, and the horse of all work, must have hard meat within him.

Carrots.—The virtues of this root are not too greatly esteemed. There is little food of which the horse is fonder.

Nutriments contained in the following vegetables—1,000 parts of wheat contain 955 parts of nutritive matter; barley, 920; oats, 743; peas, 574; beans, 570; potatoes, 230; red beet, 148; parsnips, 99; carrots, 98.

Of the grasses, 1,000 parts of the meadow cat's tail contain, at the time of seeding, 98 parts of nutritive matter, narrow-leaved meadow grass in seed, and sweet-scented soft grass in flower, 95; narrow-leaved and flat-stalked meadow grass in flower, fertile meadow grass in seed, and tall fescue in flower, 93; Swedish turnips, 64; common turnips, 42; sainfoin, and broad-leaved and long-rooted clover, 39; white clover, 32; and lucern, 23.

Thus much of the articles of the horse's food; we will now return to the subject of feeding him.

When horses are worked very hard, the practice of giving what is called manger-meat alone has been adopted, and with great success, according to the statement of those who have given this plan most trial. Manger-meat is nothing more than a mixture of corn with hay cut into chaff instead of being put into the rack. The advocates of this plan assert that a horse required to go through much work finishes his food quicker than with rack-meat before him, lies down sooner, and consequently has a longer period for rest than he would if treated in the usual way. This may be very true as regards some horses, but there are, in fact, very few who lie down directly after feeding; and a great proportion of horses, after having finished their manger-meat, will pick over their straw, and eat such parts of it as are not much soiled, in preference to lying down. The Americans, in addition to chopping up their horses' hay, grind their oats coarsely, and mix the whole together. For farm-horses, while baiting, such a plan may be a good one; but horses used for pleasure are generally allowed plenty of time for feeding, and there can therefore neither be any necessity for adopting this system. Horses, again,

that have weak stomachs, and are shy feeders, take a long time before they will eat a sufficient quantity of food to keep them in condition, and if a large mess of hay and corn be placed before them will take a few mouthfuls, perhaps, and blow upon the rest, until they take a disgust to it, and refuse it altogether.

Water.—Soft water in all cases is better for horses than hard; home water from a brook or pond is preferable to that raised from a well by pump or bucket. Valuable horses, who are apt to be heated, should not, however, be allowed to slake their thirst at pond or brook, but have water given them but little below the temperature of their stable, say 65° to 70°, and this may be done by mixing a little hot water with the cold. Observe, extremely cold water will often produce staring of the coat, colic, and rheumatism. It is by no means an uncommon notion that if horses are to be got into condition for work, they should be allowed to drink but a very small quantity of water. On what physiological basis this opinion is founded is a mystery. Nevertheless, as many persons adopt this treatment it is fitting to notice it. It is a bad plan to stint a horse in his water. Of course it is not asserted that when a horse comes in heated from exercise he should be suffered to drink, or should have a bellyful of water just prior to being ridden; but, if a horse be watered *ad lib.* in the morning, he will not require to drink again for some hours, and should never be allowed to do so then unless perfectly cool.

Times of Feeding.—What is said with respect to giving a horse water while he is hot applies equally to his food. Never suffer a horse to feed until he is cool. After fatigue of body, the stomach, of all other parts, is perhaps the least capable of exertion; and although in some cases of severe exertion a slight degree of sustenance may be requisite to support the strength and stamina of every living animal, it should always be administered in moderation; and for this purpose there is nothing better than the gruel already recommended. It is a light species of diet when not given too abundantly, against which the stomach will seldom rebel, and it is always proper that this organ, like any other, should be in good tone before its work—that of digestion—be required of it; and as when a horse is violently heated the blood is propelled by the heart in a

much greater ratio than usual, the stomach, being consequently supplied with a greater quantity of blood within a given time than it would have received without undue excitement, is as unfitted to perform its task while under the influence of that stimulus as the eye would be to bear a strong light after having been irritated by some heating application. Let your horse then remain quiet for some time after he has done his work, and he will not only feed the better for it, but will likewise digest what he eats.

There are not a few masters of horses who, from a mistaken feeling of kindness, like always to see a good quantity of food before their animals, so that they may never be hungry; not stopping for a moment to consider the degree of injury they occasion by this perpetual cramming, but vainly imagining that every extra mouthful a horse swallows is so much added to his strength and condition. We cannot, of course, expect the brute creation to act as rational beings, or to be able to resist the temptation of eating more than is good for them; and therefore the first symptom of loathing food, which is the necessary consequence of perpetual repletion, is a proof that the powers of the stomach have been overtaxed, and that it requires the same rest—only for a much longer period—as does the body generally after severe exercise.

Next to the quantity and quality of your horse's food, there is nothing that will tend so quickly to put him into condition as giving it at stated hours and at regular intervals. After a meal proportioned to his work—say from a quartern to a quartern and a half of oats—four hours are the very least period that should be allowed to elapse before your horse is again fed; and during this time (unless he has been worked so hard that you wish him to lie down), his head should be fastened so that he may not be able to get at his straw, which very many horses will eat, no matter how soiled it may be. A horse in regular and fair exercise should have but very little, if any, hay in the middle of the day; but a small quantity may be given in the early part of the morning, and a sufficient portion at night to make up his daily allowance of about eight pounds—not more. Although corn is certainly more nutritious than hay, yet if you increase your number of feeds of oats, and deprive your horses entirely of hay, it is surprising how quickly some of them will lose flesh.

Business of various kinds will sometimes compel you to alter your hours of feeding, but regularity should always be adhered to as strictly as possible; for, after having been for some time accustomed to be fed at a certain time, nature will crave food at the usual hour, even though the previous meal may have been more than commonly abundant. A horse that is generally taken out in the forenoon, if fed twice in the morning, should have the larger portion of his food at his first meal; and if he be required to work on most days from about nine till one or two, the better plan is to divide his corn into three feeds instead of four. This is preferable to working him on a full stomach, than which few things in time are likely to prove more injurious.

EXERCISE.

Exercise, the prime necessity of animal health, is an instinct wonderfully active in the horse, when free to indulge his own will, and at leisure from the restraint and servitude of man. The benefits of exercise, as a preventive of disease and as a promoter of the working condition of the animal frame, are equally self-evident. If it be true, then, that in a state of nature horses instinctively play with each other, and that to such an extent as to produce perspiration and violent breathing, may we not infer that when we stable them, subject to restraint, and then neglect to exercise them, their health must be injured? In all great cities the evil of want of exercise sadly prevails among the better class of horses.

Exercise greatly improves the wind, by promoting an absorption of the surrounding fat from the viscera of the chest, and thus allowing the lungs to expand uninterruptedly; it also enlarges the air cells of the lungs themselves; and hence, by the imbibing of more air, the animal can remain longer between his inspirations. The pearl-diver by practice, it is said, can remain under water between two and three minutes, while insensibility follows our own immersion after fifty seconds. And thus the colt in training is first able to take a gentle gallop, next a brushing one, and lastly he stretches over the ground at the top of his speed without distress.

The benefits of exercise as a preventive, and in many cases a curative, need not be further dwelt on, except to urge on owners that they should insist on its systematic and periodical observance.

The owner of a single horse should order his groom, as soon as the stable has been cleaned out in the morning, while the horse is eating his first feed, to brush him over, and put on his exercising saddle and bridle; in cold weather, if only intended to be walked, keep the cloth or sheet on him under the saddle; in warm weather, though a horse's coat may be something the finer by being kept warm, yet he is certainly the more liable to take cold when he is necessarily deprived of it. We need hardly say that the most open and airy places should be taken for exercise, and this is the most favourable opportunity to improve a horse's walk, two hours of which he should get; and it is a great thing to endeavour always to make him step longer in his walk, and thus exercise the horse, and improve him at the same time. If convenient, while out give him his water. If a horse is inclined to flesh, the like exercise may be taken in the afternoon, where persons have time and convenience. But everyone cannot allow the time to be so taken up, for it would be nearly equal to training, and may not be thought necessary; it is more than the generality of horses require, and many inferior-bred horses, who look well to the eye, cannot for a continuance stand the ordinary work that a horse has in training. If you inquire of training grooms in charge of some terrible high-bred colt, why he is not "brought out," they will answer, "He would not stand his training." This is mere cant. He has been over-trained and galloped too fast, not judiciously and reasonably exercised.

Should the horse's work be so moderate as not to occasion a sweat, then, about twice a week, he should have exercise strong enough to sweat him; this may be done in the pace he is mostly rode in, that he may be practised and improved in it; if he be admired for his trot, it would be wrong to gallop him, which might unsettle him in his esteemed pace; therefore, trot him out for the space of two miles, to bring him to a comfortable sweat, and walk him back; thus will his limbs be rendered supple, his muscles developed by red blood, and his ligaments and tendons strengthened. Inactivity debilitates, and over-exertion may sprain and

weaken, but moderate exertion is good both for man and beast.

Sweating horses increases the labour of cleaning. Indolent grooms, and those who have several horses to look after, avoid this part of their business as much as possible: let no such grooms be trusted.

When a horse comes in from work or exercise, if perspiring, wet and dirty, he should not be left until completely dry, clean, and comfortable. Some horses, in good condition, will rub dry and clean in a short time, but others, with long coats, and some from constitution or ill condition, are a long time getting dry; hence clipping and singeing, which may be rendered unnecessary by diligent grooming. But these points will be remarked upon presently.

In some hunting establishments grooms only open the stables twice a day, instead of three times, if the horses are not at work. Instead of sending the horses starving out the first dawn of the morning, they generally remain in the stables till the men have had their breakfasts, and are consequently not shut up till a little before mid-day. They then remain quiet for six hours. The late Lord Kintore's stable was conducted on this principle, and Nimrod, in describing it, said: "I must own that, although I never tried it, I see sound argument in favour of this stable management during the three dark and dreary months of winter, with horses that work hard, from a knowledge of the restorative powers of undisturbed rest both with horse and man; as also of its sedative effects in allaying excitement by whatever cause produced."

The hours of exercising might be advantageously left to the weather. Cold, damp, foggy mornings, the horses would doubtless be better in their stables; fine bright mornings should be taken advantage of, lest the day should change for the worse as it advances. There is no use in getting horses out in winter before daybreak, unless indeed the men (which is not at all improbable) have fixed a particular hour for their own breakfasts. That breakfast is one strong argument for exercising at a later period, the men having no interest in hurrying and shortening their work in order to get home to their morning meal.

When horses, in returning from exercise, show any heat or inflammation from saddle, girth, or harness, have ready a wash of Goulard water—that is, four drachms of sugar

of lead, diluted with water to a wine bottle full of fluid. Bathe the part with it, and you will give comfort to the animal, and perhaps prevent further and more troublesome and painful consequences. This cold lotion should always be at hand.

CLOTHING.

The advisability of clothing for the "general purpose" horse has been the subject of controversy in times by-past. With racers and high-bred hunters clothing is indispensable.

We have adapted the animal to an artificial life, and artificial means are needed to keep him in the required condition. In winter, clothing warms the animal and improves his coat; in summer (lighter), it keeps the skin-temperature more equable, and prevents the irritation of flies. We do not recommend, however, the complete suit of the racer to the service of the hackney.

Where stables are dry and cross-draughts avoided, a horse-cloth is, to our thinking, enough. Much of the heavier clothing may be dispensed with advantageously where dry-rubbing is conscientiously carried out. Good grooming is the surest prevention of sudden alternations from heat to cold; and we once again recommend that no stable should ever be without a registering thermometer, that its temperature may not be the subject of guess.

In the stable your horses should always have clothes enough to keep them warm, but not hot. Grooms are generally too fond of heaping rugs and blankets upon their horses, for the purpose of improving the appearance of the coat; but depend on it, that too warm clothing not only renders a horse more susceptible of cold than he should be, but also diminishes the size and firmness of his muscles. Employ, then, the "just mean"; and however pretty may be the appearance of a smart and thick rug, covered by a gay body-cloth, and this again surmounted by a hood thrown over the quarters, with the ears neatly peeping up behind the rollers, do not sacrifice your horse's well-being to appearances, which may be all very well in the show-stables of a London dealer, but are uncalled for in those of a sportsman. If your horse be clipped or singed, he will, of course, require additional clothing, for a time at least.

The hunter's clothing in cold weather is a kersey-sheet

and quarter-piece with roller, and usually a breast-piece also. To these, particularly where well-bred horses are employed, a hood is sometimes added; but, however proper it may be to exercise in a hood (which, indeed, should always be worn when walking only is allowed), we think it should not constitute a regular part of the stable dress. Even breast-cloths have the effect of keeping a part in an undue state of heat, which, the moment the horse goes out to his regular work, is the most exposed to the wind and rain. The day clothing of the hunter is commonly exchanged for the rug and roller at night.

The clothing used for the better sort of hackneys is much the same as that worn by the hunter; even the hood and breast-piece are often employed; and, indeed, the general treatment is now much alike for both; but it must be allowed that, however it may tend to improve the appearance of the hackney, or even increase his spirit, it must nevertheless subject him to cold on a change of stable.

CONDITIONING

The word "condition" is variously applied to the horse, though widely different from what is here intended. Thus, when we say a horse is in "condition for sale," we simply mean "dealer's condition," *i.e.*, he is in flesh, his legs clean and fresh, his coat fine, his eye clear, and his movements lively. A horse may be all this, but not in condition for work. Another horse is said to be "in good working condition"; such might be said of a cab-horse, bare of flesh, with joints enlarged, and his legs puffed with windgalls, yet this horse may be capable of doing much work. His being worked more than was requisite to keep him in condition has put him "out of condition."

Condition, therefore, without an expletive, implies that perfect state of body and limbs, in which the whole system is at its highest vigour, and capable of great exertion, whenever called on. This cannot be obtained or kept without strictly adhering to three things, *viz.*, proper food, proper grooming, and proper exercise; neither of these must be omitted, or injudiciously administered; for, like medicine properly administered, each does good, but is capable of doing much injury if misapplied. Wine, in moderation, cheers the spirits and invigorates the body of

man, but taken to excess debilitates the constitution and prostrates the nervous energy.

We have already spoken of exercise as ensuring the health of the stabled horse, or as preventing the accession of acute or chronic disorders by means of the lungs, the skin, and the hardening and strengthening of the muscles and lungs by promoting healthy excretion. We are not about to encourage quackery in grooms and horse-keepers—far from it—nor to give such advice as might interfere with the legitimate province of the veterinary surgeon. Yet, as a horse in precarious health, or whose exertions, exposure, or other causes of common occurrence may threaten to disable, must often be under the care of his stable attendant, it is as well that a few simple directions should be given in a sanitary sense. Now some grooms physic or bleed the horses entrusted to them at their own discretion. This should never be allowed by any judicious master. Proper feeding, due exercise, diligent grooming, will often preclude the necessity of physic. Sloth and neglect are the parents of disease in an animal so artificially treated as the stabled horse. Well fed, and not exercised, what can be expected but a train of evils, for which the drenching-horn, the balling-iron, and the fleam are to be the panacea! We have personally an intense aversion to unnecessary drugs and the use of the fleam or scalpel. A few plain directions, not to supersede, but to obviate the dire necessity of the instrument case and the battery of the pharmacopœia, shall here be set down. We will first speak of the treatment of a horse who has been newly taken up from grass. Grass is cooling and aperient to the horse accustomed to hard meat; it will also fill him with flesh; but observe, this is not flesh of a description fit for a horse to work upon; nay, if you tried him a hunting gallop you would find him faint and weak, and the fat accumulated on his cellular tissue would work out in a white lather. This checked will probably produce inflammation of the lungs, and send, as it has sent, many a fine animal to the knacker's yard.

For the purpose of taking off fat, and at the same time of improving your horse's stamina, active purgation is seldom required, and therefore you must never think of giving such doses as would be prescribed for the treatment of inflammation. Such a practice, so far from doing good, would render your horse weak and languid for several

days, and prevent him only from taking any but the most moderate exercise. Generally speaking, from three to four drachms of aloes are quite sufficient for your purpose; and they may be occasionally repeated as circumstances may require. Previous to giving physic, keep your horse for half a day at least on bran mashes, which species of food, with a little hay, must be all that is allowed him until his dung becomes tolerably firm, or, in stable language, is "set." Without this precaution you will run the risk of inducing gripes. Water with the chill taken off should also be given during the operation of a purgative, and the horse be kept tolerably warm. Walking exercise will at first be all that he will comfortably endure after his ball has left off working him, and this must be increased by degrees.

Having by this means brought your horses into such a state as to enable them to stand hard work, it should be your care, by regular exercise and careful attention to their diet, grooming, and other matters connected with their well-doing, to see that they are not suffered to fall off in strength and condition.

CHAPTER VII

THE VICES OF HORSES, AND THEIR REMEDIES

THE neglect of early kind treatment and association with mankind is the most prolific source of obduracy in the horse. Much of the disposition which characterises the animal at a mature age is established in his youth. The seeds of rebellion, obstinacy, and strife are readily sown by the hand of ignorance and indiscretion; like noxious weeds, they thrive more vigorously than those of obedience, docility, and cheerfulness. As that of the child, the education of the horse should commence at an early age, and both should be treated with kindness. Pleasure should be associated with early lessons, obedience inculcated by firmness, not by brutal severity.

It is an unfortunate fact for creatures of instinct only that their tuition is mostly entrusted to that class who have but a small share of reasoning faculty themselves; and what they have, bad temper and worse feeling fre-

quently prevent their exercising. There can be no doubt that the less reasoning faculty the pupil is endowed with, be it man or brute, the more enlightened should be the preceptor.

The horse comes next to the dog in point of acuteness of instinct, the highest-gifted of those animals we have in a domestic state; or at least, from the tuition we bestow on him, his instinct is the most developed. The ox, cow, sheep, and swine are left all but in a state of nature; the cow comes to be milked—the others to be fed; these are all the demands made on them; the labouring ox is a little more taught, but nothing more than the commonest instinct suffices to effect. The fact is, we want, in a general way, no more services of such animals than instinct enables them to perform. Even as regards the horse, highly as we prize him, but little pains are taken with his education, if the term may be used; he is mostly broke to carry or go in harness by very rude hands; but no further pains are taken with him. He will sometimes show considerable cleverness in fencing; this is only the effect of instinct and practice. The dray-horse will quietly approach the trap-door of the cellar, wait till his trace is fixed to the upcoming cask, lean sideways, as it may be called, against the collar, and on the cask reaching the pavement well knows that what was wanted of him is achieved, and if called on will willingly repeat the service. This is instinct, self-possession, and practice. Even with amphitheatrical horses “docility” is the one thing wanted. The “dancing” quadrilles, as it is called, is not by “ear,” as is pretended, but by the hand and heel of the rider synchronously used with the cadences. The horse learns to obey a signal or a motion, and instinctive obedience does the rest. With these arguments for a gentle system, we come to the subject of VICES, so-called

STABLE VICES.

Restive while Cleaning.—We need hardly remark on the difference of “temper” displayed by different horses under the hand of the groom. Horses that are steady and quiet on the road and in the field cannot be dressed without hazard to the strapper or groom, as well as risk to themselves. This will often be found to be owing to a highly

sensitive skin, in which case the remedy should be the adoption of other implements and a lighter method. For instance, to discard the ordinary curry-comb, at least for a time, and substitute stout linen rubbers, horse-hair gloves, and a flexible backed brush. Of the latter, we can safely say that they are in all cases of fine-coated animals preferable to the curry-comb, and searching enough if the horse is industriously groomed. In the majority of instances, however, this vice has arisen from teasing the animal ; or a heavy-handed fellow with a broken-toothed comb, or a worn and uneven-surfaced brush, literally knocking the animal about. As to teasing, we have watched many strappers who took a delight in making the animal lash out at random, or show his teeth ; can we wonder, then, that this "vice" is confirmed ? A change of groom, perhaps, takes place, and what was previously done partly in play by the stranger is treated as a manifestation of anger—or "vice." If the recalcitrant animal should inflict injury on the unsuspecting new-comer, of course "confirmed and dangerous vice" is the verdict, although the poor unreasoning brute was merely practising his rehearsed "horse-play." Gentle handling and encouraging words, with a firm and unhesitating approach, will soon render such a horse quiet and steady.

Kicking is too often caused by the teasing, tickling, or pinching above noticed. The habit becomes confirmed, and the ill-taught animal is voted incurable.

An inveterate kicker is to be very carefully approached by all parties, and sometimes requires even more than ordinary caution, in which case a chain is run through a pulley in the stall-post, and from that to his head-stall, so that by pulling it his head may be drawn round towards the post, and by the same action his heels drawn from it, so as to allow the groom to go to his head, when he is safe from the heels. Most good grooms, however, are able to take care of themselves, and by constant practice they learn to keep the proper distance, either near enough to make the kick a mere push, or far enough to be out of reach.

Kicking the Stall-post is injurious both to the kicker and his next neighbour, who may come in, under a bail, for the knock intended for the post. We have known horses do this for hours together in mere idle play. Hard work cures it, and if that does not, or is not available, a branch

or two of furze-bush nailed against the post will generally stop it. Mares are stated to be addicted to this bad habit far more than horses. A log of wood strapped to the leg most used in mischief has been advised. We think them very dangerous, and not heavy enough to be efficacious. A broad strap fastened round the pastern, and the weight, about five pounds, attached, so as to avoid bruising the coronet, will be found an improvement.

Biting.—This dangerous and unpleasant habit, which is often a mere indication of playfulness, is a decided vice in many horses. Watch carefully that your stable-boys and grooms do not promote or encourage it, which they often do, and then exclaim against it and punish the animal for what is caused by their own provocation and folly. If we could cover a man with a coat of mail, with invisible spikes standing from it, two or three times seizing the man would, I doubt not, radically cure the horse—not of his disposition to bite, but of attempting to do so. But as we cannot well do this, I believe a short stick, and keeping an eye on him, in approaching or quitting him, is the only thing to be trusted to. Flogging him after he has bitten will tend to increase his propensity to do it, for this reason: it is either dislike to man or fear of man that makes him bite; he seizes us to prevent our hurting him, or in revenge for having been hurt. Consequently, punishing only confirms his fear and hate; so probably, if we do this, and he finds he dare not bite, he tries the efficacy of a kick.

An instance of a mare viciously addicted to biting being cured of the habit by an accident occurred a short time since. Her former owner had foolishly taught her to do this by teasing her, and she had contracted the habit to such an extent, that whenever any person went into her box, unless her head was tied up, she would assuredly run at him. Knowing that beating her, or adopting any harsh measures, would have only a prejudicial effect, it was forbidden, and by putting the muzzle on when she was being dressed, any serious consequences were avoided. The way she cured herself was singular. She had been out to exercise, and the boy was washing her legs and feet, her head being racked up, and the muzzle taken off to allow her to eat a little hay. She turned her head suddenly, with the intention of seizing the boy, by which act she caught the stirrup-iron in her mouth, and, being

racked up, she was fixed as firmly as if she had been in the stocks. She plunged violently, and in doing so her hind quarters slipped and she fell sideways, her head still held fast by the rack-chain. By loosing the girths she was released from her perilous position, as she was almost strangled; but she never attempted to bite afterwards.

Crib-biting is one of the vilest habits a horse can acquire, and one of the most intractable. The horse seizes the manger with his teeth, while he stretches his neck forward, and, after some spasmodic action of the throat, a slight grunting sound is uttered, which appears to be accompanied by a drawing in of air. The cause of this trick is not well understood; and whether it proceeds from a bad habit, or a defect in the formation of the soft palate and back part of the mouth, remains a question.

One serious effect of this trick is the wearing down of the teeth, and instances have occurred where they have been broken. It has likewise been found that crib-biters are more liable to colic than those without this vice. Whether this proceeds from the loss of saliva occasioned by the wearing down of the teeth is also an unsettled point.

It has been found that crib-biting is acquired by horses being in the stable with one which has the trick. Among the expedients which have been resorted to for the cure of crib-biting, the edge of the manger has been lined with iron, also with sheep-skin besmeared with aloes, tar, and other disagreeable substances, but all with little effect. The ordinary preventive is the use of a strap buckled round the neck, which has the effect of slightly compressing the windpipe, and rendering it impossible to resort to it; but no sooner is the strap removed than the horse recommences his old habit, so that it must be constantly worn to be of use. Unfortunately, the continual use of it is apt to produce irritation in the trachea, and this will terminate in the affection termed roaring. A five or six months' run in a field has also been tried without proving a remedy. Crib-biters are generally in low condition.

A muzzle barred across the bottom will prevent crib-biting. This must be made only of sufficient width to allow full action to the lips, so that the animal may pull his hay from the rack and eat his corn, but so close as not to admit of him grasping the edge of the manger. Crib-biting is legally considered "unsoundness."

Wind-sucking has such a strong family likeness to crib-biting that it may properly be considered a modification of it; as it is accompanied by a want of condition, and the same bending of the neck, with the head drawn inward, is exhibited, and the horse alternately opens and closes his lips, and a sound is produced similar to sucking air. The horse presses his muzzle against the manger, quietly sucking in the air, without the noisy gulping which accompanies crib-biting. The remedies attempted have been tying up the head of the horse, except when feeding; and the application of a muzzle with sharp spikes bending towards the neck, which will prick him when drawing in his head.

Pawing is a continual working away of the litter by the fore-feet. A simple remedy is at hand in a pair of padded shackles with a connecting chain, twelve inches in length. These are placed round the smaller pastern bone, and must be taken off at night, or the horse will be afraid to lie down.

Weaving is a restless habit of swaying the head from side to side, somewhat after the fashion of a polar bear in confinement. It is unsightly, and evinces a restless disposition. "Weavers" are generally poor feeders and low in flesh. The remedy indicates itself; a short head-rein, and a little relaxation of the restraint while feeding.

Getting Loose is a very troublesome vice, and many horses are so cunning as almost to defy the efforts of the groom and saddler. If, however, a head-stall is made with a strong throat-lash, and this tightly buckled, no horse can get it off, because the circumference of the head at the jaw is always greater than that of the neck from the back of the ears to the throat. If the horse bites his halter a chain must be substituted; but as this makes a constant noise it should be avoided if possible, as other horses are readily kept awake by it.

Hanging Back is an attempt to get free, by bursting the throat-lash or collar-rein, and in some cases great force is applied in this way, so much so, that many horses have broken their hips from the sudden giving way of the halter letting them back, so that they fall over and irremediably injure themselves. The only cure is a strong chain and a head-stall that no force will break; after trying to burst which a few times the horse will almost always desist. If the manger is not very firmly placed, another ring should

be fixed in the wall, by piercing it and screwing a nut on at the back. The groom should watch for the trick, and give him a smart lash from behind the moment he tries it on.

Rolling.—Horses that roll in the stable are apt to be injured from want of sufficient room, and also to get entangled in the halter; and, strange as it may appear, although he may get severely hurt and be nearly choked by the halter, he will repeat it night after night. The only thing which will prevent him from rolling is to give him just enough of collar to enable him to lie down, but so short that his head will not touch the ground, because it is impossible he can roll over without resting his head upon the ground. If a horse is in a field, rolling is a harmless and even healthful amusement.

Not Lying Down.—Horses are sometimes prone to standing constantly; and some only lie down once in a fortnight, or even a longer period. When this is the case, they are generally liable to swellings in the limbs, and seldom able to go through much work. Such horses should, if possible, be put into a stable by themselves and left at liberty, and a well-made bed will sometimes tempt them to lie down. No means can be adopted to force the animal to take rest by lying down. When it is not possible to place him in a stable alone, an empty box should be constructed so that he may be left for the night unhaltered in it. We had a remarkably fine harness horse that never was known to lie down, and yet he kept in good condition, and was not troubled with swelling in the limbs; but this is a rare occurrence. He sometimes fell down on his knees while asleep, but the groom always found him on his legs before he could reach the stable, although his house was next door.

Casting.—This is the result of a sportive inclination in the horse to roll completely over in his stall, as though at liberty in the field. It is a trick fraught with danger, as the unwieldy animal in so confined a space gets completely over on his back against the wall or ramp, and there, unable to roll back again, struggles to his death by rupturing the colon, "ricking" his spine, or some other mortal injury. The prevention is difficult; but, if the horse is within hearing of the groom, a prompt attendance will usually prevent unpleasant consequences. We have known horses

lie all night in such distressing positions that it was a miracle they lived till morning. By throwing a halter over both legs, or three or four straps buckled together, the cast horse may be readily drawn over on to his side, when he will gladly get on his feet, unless seriously injured.

Halter-casting is occasioned by the animal getting one of his fore-legs over the halter and throwing himself. Whether with rope or chain the animal is in danger of badly wounding himself. Horses addicted to pawing are most liable to accident, though we have seen it arise from a habit of scratching at the head with the hinder-foot—the drop weight of the halter or collar rein not acting so as to prevent it getting loose. A couple of collar reins should be used to prevent the pawing accident; for that with the hinder leg, a ring in the head wall, about seven feet from the ground, with a rack chain about three feet long, may prevent the calamity.

Restive while Shoeing will be included in our general remarks on this vice. Where a horse, otherwise docile, exhibits a peculiar aversion to the smithy, and we have seen such, make an investigation as to his treatment there. It is only a month since we attended at a police investigation where a shoeing-smith had struck wantonly a valuable saddle-horse on the stifle with his hammer, by way of preliminary to taking up the foot. The poor animal was irrecoverably injured; had he been less so, he might have been set down as “vicious to shoe.” With a young horse great caution is necessary, and the gag or twitch should be only resorted to in extreme cases. It is the biped, not the quadruped, that is generally the aggressor in these instances. Mr. Youatt, whose humanity shines in all his writings, says on this point: “It should be a rule in every forge that no smith should be permitted to strike a horse, much less to twitch or to gag him, without the master-farrier’s order; and that a young horse should never be twitched or struck. There are few horses that may not be gradually rendered manageable for this purpose by mildness and firmness in the operator. They will soon understand that no harm is meant, and they will not depart from their usual habit of obedience; but if the remembrance of corporal punishment is connected with shoeing, they will always be fidgety, if not dangerous. This is a very serious vice, for it not only exposes the animal to

occasional severe injury from his own struggles, but also from the correction of the irritated smith, whose limbs and even whose life being in jeopardy, may be forgiven if he is sometimes a little too hard-handed. Such a horse is very liable, and without any fault of the smith, to be pricked and lamed in shoeing; and if the habit should be confirmed, and should increase, and it at length becomes necessary to cast him, or to put him in the Travis, the owner may be assured that many years will not pass ere some formidable and even fatal accident will take place. If, therefore, mild treatment will not correct the vice, the horse cannot be too soon got rid of." We have seen recently a very simple method tried to make a horse still while shoeing. It is merely fastening down one ear.

Eating Litter.—The rack-rein and muzzle at once indicate the mechanical means of preventing this pernicious habit. For this purpose, we would recommend a rack-rein and muzzle, to be alternately used; when the one is taken off, the other to be put on. For instance, you put on the muzzle when you wish or expect the horse to lie down; consequently you put it on at leaving the stable at night. Some horses will eat the litter even when it is very foul; and when fresh litter is given, others will prefer it to hay; and though clean straw is not injurious to horses that are not required to gallop much, yet hunters and racers must not be permitted to eat it. The rack-rein is an iron chain fixed at the head of the stall, which passes through a ring sewed in front of the nose-band of the stall-collar; it is fastened in the same manner as a dog's chain to the ring in the collar, and when dressing the horse, you can, after passing it through the collar, fasten him as short as you think proper; but, at other times, the chain must be long enough to permit the horse to feed out of his rack or manger, though not to let his head reach down to his litter.

Some horse-keepers place a piece of rock salt in the manger to wean the horse from his foul feeding, and satisfy his morbid appetite. It is worth a trial.

VICES ON THE ROAD.

Restive to Mount.—The term "restiveness" may be said to include plunging, rearing, kicking, bolting, and general impatience while being mounted. Even if one resolute or

strong person has brought the animal into subjugation, he is always dangerous to the next man who mounts him. When the difficulty of mounting arises, not from eagerness to start, but from unwillingness to be ridden, the sooner such a horse is disposed of the better, unless the owner is determined to try his hand at horse-breaking. When the restiveness, on the other hand, merely amounts to eagerness to start (very unpleasant, indeed, at any time, for many a rider has been thrown from his seat before he was fairly fixed in it), it may be remedied by an active and good horseman. We have known many instances in which, while the elderly and inactive and fearful man has been making more than one ineffectual attempt to vault into the saddle, the horse has been dancing about, to his annoyance and danger; but the animal had no sooner been transferred to the management of a younger and more agile rider than he became perfectly subdued. Severity will here, more decidedly than in any other case, do harm. The rider should be fearless; he should carelessly and confidently approach the horse, mount at the first effort, and then restrain him for a while, patting him, and not suffering him to proceed until he becomes perfectly quiet. These horses should not be too highly fed, and should daily have sufficient exercise.

Shying.—Whether this arises from fear, vice, or playfulness, it is equally important to check its earliest displays. Shying is one of the worst of habits, and more accidents have resulted from it than all other vices or defects. One cause of shyness is defective vision; timidity stands next, and it often proceeds from a frolicsome disposition. Shying is less common among high-blooded horses than half-bred ones, although it is occasionally found among our first-class racers.

When shying proceeds from playfulness it is difficult to judge what mode of cure is best to be adopted; because if corrected for it, he will associate with any object that diverts his attention the infliction of punishment, which will tempt him to run away, under the dread of a flogging; and if caressed for the fault it is liable to induce him to repeat it. But, of two evils, gentle correction must be adopted, and rather to pass by the object than to take him up to it. He should also be spoken to sharply.

If shying proceeds from fear of new objects, the way to

correct him of this is not to force him up to them, but to pat him and soothe him; avoid beating, and take care to pass the objects of his fear again and again, always going nearer to them every time you pass. This will familiarise him to them. Seeing that these are harmless, he will soon learn to pass by unnoticed any novel object which he may meet with upon a road.

When an animal is given to shying from defective sight, the only method to effect a cure is to take him up to it, and in the act of doing so he must be coaxed to approach it, and on no account must he be beaten; and although it sometimes happens that the horse will manifest great reluctance to do so, he should be persevered with, and not allowed to proceed until he has seen closely and smelt at the object of his fear. After he has been a few times thus treated, he will soon learn to pass with indifference any object which he may meet. Many of Rarey's remarks, already referred to, may be remembered and applied with advantage. We will take here an illustration, from Blaine's book, of the principles laid down.

"We once purchased," says that experienced veterinarian, "a horse with an excellent character for steadiness, except that he was always much alarmed at a passing carriage, whether it was coming towards or overtaking him. A tilted waggon or a stage-coach on the approach were such objects of dread as no power could get him to face. We knew it would be in vain to oppose human physical force to brute fears, and that it was only by introducing favourable recollections derived from those very objects greater in degree than the fears hitherto entertained of them, that we could conquer this dangerous propensity. We began by leading the horse, previously exercised and fasted, towards a cart filled with clover hay; the smell of the hay was irresistible, and soon dissipated all dread of the stationary cart; but when it was purposely moved gently onwards, he became rather discomposed; a little coaxing, however, induced him to follow it, and we had the pleasure, at this his first lesson, of seeing him proceed confidently with the cart round a farm-yard, and finally into the road. To vary the effect, after he had steadily walked by the side of the carriage a certain time, we restrained him, so that it got ahead of him; when he again reached it, slight indications of fear appeared as he had to make his way up to the side of the cart, for we had a

coverlet purposely drawn over the back, that he might not reach the hay from behind. We next passed the cart altogether, but it was a few paces only, and then turned him round to the other side of it; but his whole mind was so intent on the clover that, with the most trifling symptoms only of alarm, he fell to again on the hay, which finished lesson the first.

Our next attempt was made with a sieve full of corn, presented to him on an empty stomach, which he could only reach from the tail-board of a tilted waggon—an awful object! After a few snortings and sniffings, here also hunger overcame his fears, and he munched the oats with great relish; but when the waggon was put into motion, his dread for a little time got the better of his appetite, and the flapping of the covering of the tilt appeared to him most portentous. His fears even in this case, however, soon gave place to confidence, by the tact displayed by a groom to whom he was much attached. This man mounted the waggon, and, resting on the tail-board, offered the oats to the horse, at the same time calling and encouraging him. This worked wonders; nor shall we readily forget the knucker of acknowledgment with which the confiding brute followed the groom's call as the waggon moved on, occasionally dipping his nose into the sieve. After a few more lessons of a similar kind, one or two of which were varied by giving him hay from the window of a stage-coach, he lost all fear of carriages, and his former owner would willingly have taken him back at a very considerable increase of price."

We introduce this merely as an instance of the truth of an opinion entertained by most observant sportsmen, but often acted against by grooms, that the punishment of blows will very seldom cure vicious habits originating in fear. All startings and fears of every description are only increased by them, for the horse in these cases associates the dread of two evils instead of one—that of the object itself, and that of the punishment which is to follow; the consequence of which is, that his resistance is doubled. How common is it with thoughtless persons, when a horse shies at an object, to force him up to it by blows; by which means we are confident that no horse was ever cured of shying, but, on the contrary, he has always been rendered doubly timid. It is, however, not amiss, when a horse

shies principally at any one fixed object, as a tree, milestone, etc., to coax him towards it by every mark of encouragement. If he will not readily approach it, use no force, but dismount, caress, and incline his head from the cause of his alarm, gradually drawing him nearer and nearer to the object itself, which, having approached, he will invariably closely examine himself by smelling it. If this be practised with gentleness, it is more than probable that such horse will shortly be cured of shying at that particular object or its like.

That amusing instructor, "Harry Hieover," has a "wrinkle" of stuffing a horse's ears with cotton which may find a place here. He tells us, what we all know, that "horses in any way nervous or high-tempered are much affected by sounds and noises, particularly when arising from any object or circumstance they cannot see. I have had two remarkable in this particular, the one a mare. Whether in harness or out, a horse or carriage behind her drove her almost mad; let either come alongside of her, she was quiet directly. When in harness, if she but heard a horse behind her, up went her head and tail, and she would bound something as we have seen a fallow deer do in passing us; and, though at other times possessing a fine mouth, on such occasions it was difficult to hold her. The other horse was a hunter, as placid and steady as horse could be when alongside hounds in chase; but while they were finding or, what was worse, running in cover, the cry of the pack would cause him to tremble with anxiety or some such feeling, and he would burst into a sweat ten times more profuse than any run would call forth. Being both good horses and pleasant, except in these particulars, I was determined to try and palliate them. I had a pair of thick ear-caps made for each of them. This I found produced a wonderful alteration for the better; but it struck me these ear-caps must heat the horse. Why not try cotton? I did; stuffed their ears well with it when using them, and found no inconvenience from sounds afterwards."

A thousand pages of advice could not add to these practical experiences.

Backing or Jibbing.—It is by no means infrequent for harness horses to back instead of drawing when first started, and others combine with this curious obstinacy

the practice of other vices. When the backing is mere skittishness, which we have known it, an encouraging word and a smart smack of the whip have cured the inconvenience. Where the determination is more manifest, take the thing coolly. Satisfy yourself by examination that the harness and its "fixins" are all right. Sometimes the withers are wrung, and the shoulders galled; and the pain, which may be moderate on level ground and with a fair draught, becomes insupportable when going up a steep acclivity. These things should be seen into, and, if possible, rectified; for under such circumstances severe punishment produces obstinacy and vice.

A horse whose shoulders are raw, or have frequently been so, will not start with a cold collar. When the collar has acquired the warmth of the parts on which it presses, the animal will go without reluctance. Some determined jibbers have been reformed by constantly wearing a false collar, or strip of cloth round the shoulders, so that the coldness of the collar should never be felt; and others have been cured by keeping on the collar night and day, although the animal is not able to lie down so completely at his ease as without it, which a tired horse ought always to be able to do. When a horse jibs at his work, it has been sometimes useful to line his collar with cloth instead of leather; the perspiration is more readily absorbed, the substance which presses on the shoulder is softer, and it is more readily eased off at a tender place.

With horses which have this habit at starting, one method to break them off it is to place a heavy stone behind the wheel; and the horse, feeling he is unable to back, will generally proceed forward, finding it more easy to do so; and by carefully continuing this practice, the horse will gradually be broken of the bad habit. Another plan, nearly as good, is to start the horse, if it can possibly be managed, with the back of the machine placed towards a rising ground; and as it is more difficult at all times to force it backward and forward, besides the hill being against him, he will prefer going forward to backward. Sometimes it will be necessary to lead the horse for a short distance, and when the groom has quitted the reins, a gentle touch with the whip will make him proceed. If, however, he is determinedly obstinate, there will be little chance of succeeding by

forcible means; and if the driver is resolved to use compulsion, we would recommend that it should not be attempted unless there is a wide space, where by tight reining the driver may back him in the particular direction which he wishes, and it would be very desirable to do so up-hill if the ground inclines in the neighbourhood. But still there is danger in the attempt.

We believe many horses are such determined jibbers that they will never cure. When this is the case, they should be sold to the owners of a vehicle in which four-in-hand or unicorn are driven, and if placed as near wheeler they will be forced to do their work. Some have also been worked in a team by farmers; but nobody would think of keeping an animal which can only occasionally be rendered serviceable.

Kicking.—In a former page we noted this as a stable vice; under saddle or in harness, however, it is far more dangerous to rider, driver, and the public. In saddle, get well hold of his head, lift it firmly and determinedly, then bring the whip smartly down the shoulder. Mind his head is well up when you deliver the blow, or he may get his nose down and lash out again. When the animal proves an inveterate kicker, a gag-naffle will serve to keep his head up. The gag-naffle is not, unless the horse wilfully hangs on it, more severe than a common snaffle, while, if he will have it so, it acts through the pulley-like attachment of the rein with augmented power, drawing the angle of the mouth above the usual seat of the bit. It is valuable, too, with “pullers” who “bore” in the hunting-field.

In harness, as we have said, a kicker may be yet more dangerous and mischievous. Horses that are fidgety in the stable are most apt to do this on the road.

The slightest touch on such animals' quarters, even by the reins touching, will set them kicking; and in many instances the front of the carriage will be driven in, or a gig may be battered to pieces, the horse frequently coming off with a broken limb, or the driver may sustain serious injury. With kicking horses, the greatest care should be taken not to allow the harness to pass under the tail, as the moment they feel it the tail is pressed suddenly and tightly down, so much so, that it is difficult to extricate the reins, and the more the driver pulls the more the animal kicks and plunges. When the driver finds that the reins are so

entangled, he should on no account attempt to extricate them by pulling, but quietly get down, and release them by lifting the tail gently.

Where persons cannot afford to part with such horses, as they must be sold at a great loss, a strong kicking-strap may be used, which circumscribes the use of the hind limbs, and prevents the horse from raising them for an effective kick. Still, rely not too much on this; for if the horse should once break the strap he is worse than ever—indeed, incorrigible.

The uninitiated are not aware of the very slight things which will cause a horse to kick on being first put into harness. The mere putting the crupper on, if done suddenly, in putting on the harness, will sometimes cause him to kick. Probably, with the harness loose on his back, his kicking on first feeling the crupper sends it off him, or partly so. The horse gets seriously alarmed at this; a scene ensues; and then there is (to use the designation of a farce) “the devil to pay.”

Backing a horse into the shafts (which should never be done) is very likely to set him kicking. He comes suddenly in contact with the shaft in some part, and either he rushes forward in alarm, or sends his heels at it. This might be termed lesson the first in virtually teaching the animal to kick. If in double harness, the very turning a corner incautiously will cause many a horse to kick, from feeling the pole or trace suddenly come in contact with his thigh.

Even throwing the driving rein to be buckled over the young horse's back, instead of that of the break horse, which a stupid or careless fellow might do, will probably alarm a horse new to harness. He rushes forward, is checked by the traces, then backs himself suddenly, is then checked by the pole-piece and collar, feels himself hampered in every way, gets alarmed or angry. Here, probably, is “the devil to pay” again.

Mr. Bingley gives us, among others, the following incident of his horse experience: “An instance of an inveterate kicker in harness occurred under my notice. An elderly relative, with whom I at that time resided, made a purchase of a remarkably good-looking horse, for the twofold purposes of working on the farm and running in harness. On the following morning he was attached to a plough on the gee-ho principle, and when required to ‘move on’

responded by kicking most violently. I was summoned to the scene of action, but for some time he would allow no person to approach him, and struck at those who attempted to go near his head with his fore-feet, as viciously as he did with his hind ones; at length, by strapping up his near fore-leg, they succeeded in getting him released from the plough. His gearing was taken off, and replaced by some strong harness, when he was placed between the shafts of a substantial roller, such as is commonly used for rolling the land. When properly secured at all points, a powerful and steady horse was put before him, and he was kept moving in a fallow field till night. He kicked the roller furiously and repeatedly, but in doing so he hurt his own legs, and finding he got the worst of it, he left off. The next morning his hind legs were very sore, and he was again attached to the roller, but he did not evince much inclination to commence hostilities, and in the course of that day he was put to a gig. I drove him constantly, and he never repeated his vice. It was afterwards discovered that he had been in the possession of a post-master, and that he had kicked the boot of a gentleman's carriage to pieces, for which he was sold as incorrigibly vicious."

It will be found that brute force or brutal violence rarely succeeds or produces the desired effect with horses, or, indeed, with any animal. Brute force subdued Van Amburg's lions, but it did not tame them. They were too much subdued to attack him while his eye was on them, he knew; but if he had turned his back or shown he had fear of them they would have pulled him down and torn him to pieces. Brute force may compel a horse to do a particular act at the time—it may even make him fear to commit one at variance with our safety; but, and let opportunity occur, we shall soon find that fear alone will never eradicate a bad propensity.

Plunging is akin to kicking, though very differently performed. The animal makes a bound or spring with his back bowed upward, with the apparent intent of unseating his rider. Sometimes he "tucks," *i.e.*, springs with all four feet off the ground suddenly, an experiment very likely to answer his unpleasant intention. When a horse has this habit, hold his head closely, as for kicking, with which it is often complicated or alternated. A modern writer recommends that a horse-cloth rolled up, strapped to the front of

the saddle like a soldier's cloak, will greatly add to the safety of the rider. The general treatment must be, as so often said before, the "soothing system," with firm but very moderate punishment.

Rearing.—This is a common trick with young horses, and is oftener playfulness and mere animal spirits than anything like "temper." It is, however, alarming, and may be very dangerous to the timid or unskilful rider, when it is a decided rise, involving also the unintentional danger to the animal itself of a roll over. Generally, however, it is in colthood a series of wanton gambolling skips, which sometimes go off like the freaks of a kitten; but lest they become a habit, and partake of an attempt to get rid of the rider, severity and hurry must be avoided. Use for a time—it may not be permanently needed—a martingale, with a running rein commencing at the breast strap of the martingale, and then, running through the ring of the snaffle, bring it back to the hand. This will give you a full power of the horse's head when its exercise is called for, and will not distress him while he behaves himself. When the horse rises, lean well forward and hold by the colf and inner thigh, loosening the bridle a little when he is in the air, and then bringing his head in as he descends. A rough remedy for rearing has been tried by some horse-breakers—we do not recommend it; the process is to provide yourself with a bottle of water, and when the horse rises break it between his ears by a smartish tap.

Shouldering.—Some obstinate ponies and ill-taught horses have acquired this ugly trick. It consists in trying to squeeze the rider's leg against a post, paling, or wall, and to scrape him off the saddle. We once had a little Welshman who had a genius for this when he had a youngster on his back; we cured him by mounting him ourselves, and when he tried this lateral movement (which is easily overcome by putting out the foot as he sidles towards the object), we found a sharp pull of the near rein (it seems almost universally tried on the off-side), coupled with a most unmistakable simultaneous slash over the off ear, brought him clear away. Three or four of these lessons, in an orchard well studded with old trees, made him pass as clear of them as could be desired.

Hugging the Pole.—"Harry Hieover" thus proposes to deal with an animal exhibiting this not uncommon propen-

sity: "A horse having this vile habit I should strongly recommend others to sell, unless they were disposed to try a plan that I found effectually cure one of my own. I drove him at wheel on the off-side; but, whichever side he was put, he 'hugged the pole' the same. I had a piece of board, about ten inches in width, screwed to the off-side of the pole. On the off-side of this surface I nailed some strong green furze, clipping it till it did not project more than three inches on the side the horse went. I took care to give him a hole in the pole-piece, the same with the near side trace, and lengthened his coupling rein; so he had not occasion to approach the pole thus armed. This being merely a lesson to the horse, I took care to manage the drive so as only to have occasion to turn the carriage to the off-side during the lesson; as usual, he began or attempted hugging the pole, but he started from it as if a tarantula had stung him. I suppose in a few minutes the smarting went off, when he tried the same game, with the same result. I conclude the second application of the furze, acting on the first, produced increased effect, for it was a longer period before he transgressed again, and before my drive was finished he took especial care not to approach the pole. Though this bid fair as to curing him of a bad habit, I in no way expected a lesson or two would cure him; but ten days' driving effectually did, and afterwards it was somewhat laughable to see, if he forgot himself, or attempted pole-hugging, with what alacrity he jumped back into his proper place."

Seizing the Cheek of the Bit.—When horses are so cunning as to get the cheek of the bit into the mouth, they have immense opportunity for displaying any impatience of control they may be inclined to; any moderately skilful saddler and harness-maker will show you how to prevent this being done a second time.

Running away—vulgo, "Bolting."—This, in its commonest form, is merely a sign of a hard mouth, and self-will in maintaining the gallop. Its other phase is a most dangerous vice. When it is consequent on nervous excitement or fear, the usual expedients for "gentling" or calming irritability already recommended are to be adopted. All sorts of severe hits have been devised to prevent horses running away. Some excellent authorities recommend the "Bucephalus nose-band," a contrivance which keeps the mouth of the horse closed, so that the "port" of the mouth-

piece acts against the upper part of the mouth, in a manner it cannot do when the animal has the power of opening it to ease the pressure. This nose-band will be found useful with hard pullers, and "borers" in the hunting-field.

This dangerous propensity generally shows itself in nervous young horses, who at the least noise behind or beside them become alarmed, break from a trot to a gallop, and, terrified by the impotent struggles of their riders to stop them, or the still pursuing sound of wheels behind them, become maddened, and dash on in their perilous career. When a horse finds or thinks he has succeeded in these efforts to escape danger, on a recurrence of the noise or cause of fright he will pursue the same course, to the peril not only of rider or driver, but of himself, and whatever he may meet with in his impetuous flight. The vice becomes confirmed, and it is only by the utmost nerve, coolness, and command of temper, dashed with kindness, and the "rational" treatment of the mania (for panic-fear in horses is madness), that we can hope to check the disease. When a horse is known to have a tendency to running away, be *extra particular* that all portions of his "furniture" be sound and strong, particularly bridles, reins, and bits; get a firm, steady hold of him at starting, and speak to him soothingly and encouragingly. At the very first symptom of a bolt check him sharply and speak to him in a firm voice; never allow him to increase his pace of his own accord, or fear will augment it and he will break into a gallop. Keep the reins in driving evenly in hand, but do not by a constant pull deaden the mouth. Be ready to catch him well by the head quickly, and you may get him under command without frightening him.

In the saddle, on a determined brute, it is a good manœuvre to select a hill, and, giving him his head, urge him an uphill burster; this has "taken it out" of many a "bolter," by making him go his hardest for your pleasure, just as he was thinking of doing it of his own wilfulness and vice. In this the horse resembles not a few of our reasoning race, who will work hard for pleasure, but will do nothing in the shape of work, either for utility or to serve another. These customers we have found, when fresh, will try it on again; but a good rider—and none other should mount or drive them—will make them tired of their little game; and then such animals generally prove first-raters. As we have said, a dead pull

is no use with such bolters; it is better to let them go when there is plenty of room, and then to try what a sharp and severe pull will do, not keeping it up too long if ineffectual, but loosing the mouth again for a time, and then trying again. Sometimes, however, there is no room for this, and then the only plan is to try and bring the head round, either with a view of galloping in a circle, or to run the head against a fence, or even a wall or strong gate. Sometimes anything is better than a straight course—as, for instance, in a crowded thoroughfare, where there would be an almost positive certainty of mischief; in such a case it is better to do anything than to persevere in the course which the runaway is taking.

A driver of good nerve may in this extremity pull or drive the horse straight for anything that is insurmountable and that must stop him—say a thick hedge, or even a wall, at all risks of damaging the animal. With judgment and coolness this is the best chance for rider or driver; indeed, a few bruises or loss of life may be the alternative. We will give an illustration. A friend of the writer's, a civic magnate, well known in connection with the removal of the horse and cattle market from ancient Smithfield to its present site, was driving a high-couraged horse, a new purchase, in a dennet, down Parliament Street. He had a lifelong experience in horseflesh as well as fat cattle, and was a match for any coper that ever chaunted a "screw" in the departed market for "blind 'uns and bolters," which for more than seven centuries was held "in the Smethfelde on the outer syde of Newgate." Our driver, then, who had with him his wife, was no cockney with the ribbons, albeit his calling was exercised within the sound of Bow Bells. At the corner of Charing Cross his horse took fright, and bolted along the somewhat crowded thoroughfare. Desiring his better half to hold fast in her seat until he should bid her jump, he got the animal well by the head, and guiding his frantic steed direct for one of the strong iron gas columns near the Horse Guards, the animal came flush with his forehead against it, fell instantly, as if shot, and rose no more. And how fared the worthy deputy and his better half? The one jumped out at the word "Jump!" and got off with a graze, and possibly a bruise; while the wealthy carcase butcher, as he told us cheerfully, was none the worse, except the repairing of the chaise, which was his

own ; and the dealer who lent him the horse on trial, he added, "I have since learnt, knew he was a bolter, so he'll never get a farthing—though I don't think he'll have the face to ask me."

CHAPTER VIII

RIDING—GENERAL OBSERVATIONS— POSITION OF THE SADDLE—THE BRIDLE— THE STIRRUPS.

The Saddle, which ought to be wide and roomy, should be placed in the middle of the horse's back, a hand's breadth (four or five inches) from the point of the withers, but so as to give free play to the action of the muscles of the shoulders. Lay the *girths* evenly one over the other ; draw them only so tight as to admit comfortably the forefinger to be placed between the girth and the horse's belly. Fit the *surcingle* neatly over the girths, and do not buckle it tighter than they are drawn. The large ring of the breast-plate or martingale, when worn, should be placed two inches above the breast-bone, and should allow of the hand being laid flat between it and the horse's shoulders.

The malposition of the saddle, particularly in horses with upright shoulders, is the cause of many horses falling, from its pressing too much on the shoulders, and by that means confining the action of the muscles, which thus become benumbed, and lose their elasticity. A partial deadening of the limbs having taken place, the horse, from want of vitality in the legs, stumbles, and is unable, through the torpidity of the muscles, to recover himself, and falls to the ground ; in many cases he has been known to fall as if shot.

THE STIRRUPS.

The length of the *stirrups* should be so adjusted that the bottom edge of the bar hangs about three inches above the heel of the boot. This length will be found most convenient for the horse and his master in hack-riding. The method of determining the best length for the stirrup is thus given by Mr. Waite in his little book called "Graceful Riding": "Take up the stirrup-iron with the right hand, at the same

time placing the bottom of the stirrup-iron under the left arm-pit ; then extend the left arm until the fingers of that hand easily touch the stirrup buckles ; this is a sure criterion with most people."

The Bridle is put on with the curb bit so placed that the mouthpiece in horses is no more than an inch above the tush of the lower jaw ; in mares two inches above the corner teeth is the distance. The *bridoon* should just touch the angles of the mouth, so as to sit easy, with drawing them up. The *headstall* should be parallel to the projection of the cheek-bone, and not lie over or upon it. The *nose-band* is better placed low, and should not be buckled tight. The curb, when properly fitted, should lie flat and smooth in the hollow of the lips, so as to allow the finger to be easily introduced between.

MOUNTING AND DISMOUNTING.

Directions for mounting must always be taken with an allowance for the different relative heights of the horseman and the animal he is to ride. We shall therefore merely give such general instructions as apply to the medium size in both biped and quadruped, and the average activity and weight of gentlemen of the present day. When a horse is intended to be mounted he should always be approached quietly on the near (or left) side, and the reins gathered up in the hand steadily. The snaffle rein (or bridoon) first ; then pass this rein along the palm of the left hand, between the forefinger and thumb. The curb rein must now be drawn over the little finger, and both reins being held of an equal length, and having an even pressure on the horse's mouth, must be laid over each other, and held firmly in the hand ; the thumb pressing upon them to prevent them slipping through the fingers. Be particular that the reins are not taken up too short, lest it should cause the horse to rear or run back ; they must be held neither too tight nor too slack, but having an equal feeling of the horse's mouth. Next take up a handful of the mane with the right hand, bring it through the palm of the left hand, and twist it round the thumb. Take hold of the stirrup with the right hand, the thumb in front. Place the left foot in the stirrup as far as the ball of it, placing the right hand on the cantle (or back part of the saddle), and, by a spring of the right

foot from the instep, the rider should raise himself up in the stirrup, then move the hand from the cantle to the pommel, to support the body while the right leg passes clearly over the horse's quarters; the rider's right knee closes on the saddle, and the body drops gently into it. The left hand now quits the mane, and the second stirrup must be taken without the help of eye or hand.

The left hand (the bridle hand) must be placed with the wrist rounded outwards, opposite the centre of the body, and about three inches from it, letting the right arm drop unconstrained by the side of the thigh.

Mounting without stirrups while the horse is standing still is effected as follows: The rider stands opposite the saddle and takes hold of both the pommel and the cantle, keeping the reins in the left hand at the same time, and in the same manner as in ordinary mounting. Now spring strongly from the ground, and by means of the spring, aided by the arms, raise the body above the saddle; then twist the leg over, whilst the right hand is shifted to the right side of the pommel, and by means of both hands the body is steadied into the saddle. Mounting without stirrups may, by very active men, be effected while the horse is going on, much in the same way as is seen constantly in the circus. The rider runs by the side of the horse, laying hold of the pommel of the saddle with both hands strongly, and allowing him to drag him along for two or three very long steps, he suddenly springs from the ground and is drawn into the saddle. This feat is seldom achieved by the ordinary equestrian; but it is easier than it looks, and in riding to hounds is sometimes of great service with a fidgety horse.

Dismounting is effected by first bringing the horse to a standstill; then shorten the left hand on the reins till it lies on the withers, with a steady feel of the mouth, twist a lock of the mane on the finger, and hold it with the reins; bearing also on the pommel with the heel of the hand. Next throw the right foot out of the stirrup, and lift the body, steadied by the left hand, and borne by the left foot, until it is raised out of the saddle; throw gently the right leg over the cantle, and as it passes it grasp this part with the right hand; then lower the body gently to the ground by the aid of the two hands and the left foot; or if it is a very short person and a tall horse, by raising the body out

of the stirrup on the hands, and dropping to the ground by their aid alone.

Dismounting without stirrups requires the horse to be brought to a standstill, then holding the reins in the left hand, both are placed upon the pommel, and by their aid alone the body is raised out of the saddle; the right leg is now thrown over the cantle, and in doing so the right hand seizes it and with the left lowers the body to the ground.

MANAGEMENT OF THE REINS, AND SEAT ON HORSEBACK.

Our horseman at ease in his seat, and looking forward between the ears of his animal, adjusts the reins, which we will suppose to be bridoon, or snaffle and curb. The reins should hang untwisted from the bits. Mr. Waite gives the following minute practical directions, which we transcribe, for holding the reins with one or both hands:

"Holding the Reins in one Hand.—The rider must take up the bridoon reins with his right hand, and pass the second and third fingers of the bridle or left hand between them, draw up the reins with the right hand, until the horse's mouth can be felt, and then pass them between the forefinger and thumb. Next take up the curb reins (again with the right hand), and pass the little finger of the bridle hand between them, draw them up, as before directed, with the right hand, until the rider perceives there is an equal length and feeling with the bridoon reins; the latter having rather the strongest pressure on the animal's mouth. This done, lay them also over between the forefinger and thumb, and press down the thumb firmly upon them to keep them from slipping; the hand to be held with the wrist rounded outwards, opposite the centre of the body, and about four inches from it. The right arm should hang without restraint, and slightly bent, by the thigh; the whip being held about twelve inches from its head, with the point turned upwards.

Riding on one Rein.—Take up that particular rein with the right hand, and pass the second and third fingers of the bridle hand between them, then draw up the reins, but be careful, in doing so, not to hold the horse too tight in hand; the other rein should hang down, having the little finger passed between them, and the thumb also over them, so that

they may be caught hold of and drawn up quickly on any sudden emergency; the loose reins are to hang between those in use.

Using both Hands.—Take the bridoon reins between the second and third, and the curb reins between the third and fourth fingers of each hand, each rein having an equal bearing on the horse's mouth; the hands are to be held about six inches apart, with the wrists rounded outwards, and the thumbs pressing firmly upon the reins, the elbows well down, and held near to the sides, the whip held as directed above.

A tight rein should always be avoided, because if he carries his head low it tends to deaden his mouth, and teaches him the bad habit of depending upon the bridle for support; in which case he always goes heavily in hand, and on his shoulders. The horse should at all times be taught to go on his haunches.

If the horse naturally carries his head well, it is better to ride him with a light hand, only just feeling his mouth.

Turning.—In the turn either to the right or left the reins must be held quite evenly, so that the horse may be immediately made to feel the aid of the rider's hands; he (the rider) must then have a double feeling on the inward rein, also retaining a steady feeling on the outward; the horse being kept up to the hand by a pressure of both legs, the outward leg being the stronger.

Reining Back.—The rider should frequently practise reining back, which is of the utmost service both to himself and his horse; by it the rider's hand is rendered firm and materially strengthened, and the pliancy of wrist so essential to the complete management of the horse is achieved, likewise causing the body of the rider to be well thrown back and his chest expanded, thus forcing and preserving an erect position in the saddle. Also, the carriage of the horse becomes greatly improved, his head is maintained in its correct position, and he is compelled to work correctly on his haunches.

In 'reining back,' the horseman requires a light and steady feeling of both reins, a pressure of both legs, so as to raise his horse's forehand and keep his haunches well under him, at the same time easing the reins, and feeling them again after every step.

Stopping.—None are thoroughly taught until quite au

fait in the stop. It is of far greater importance than may be usually imagined. In the first place, it shows the horse to be well under command, especially when the rider is able to do so instantaneously; it saves, in the second place, many serious and inevitable accidents from carriages, horsemen, etc., such as crossing before, suddenly pulling up, turning quickly round a corner, or coming unawares upon the rider.

"Care must be taken to make the stop steadily, not by a sudden jerk upon the bit; by doing so, the horse, if 'tender mouthed,' will be made to rear and plunge. To make the horse stop properly, the bridle hand must be kept low and the knuckles turned down. The rider's body must be well thrown back; he must have a steady feeling of both reins, and closing both legs for a moment, so keep his horse well up to hand. The rider's hands always must be eased as soon as halted."

As to *Seat on Horseback*.—With the *haute école*, as our neighbours call the teaching of horses to astonish the beholders by capricious, demivoltes, lifting their feet in a manner to render them useless and unserviceable, and other tricks of the circus, we have naught here to do, confining ourselves to the modern English school of riding.

It is easy to discover the riders who have been taught in a good school by their firm, graceful, and uniform position in the saddle, and by their ready and skilful application of the bridle, hands, and legs; such being indispensable to the skilful guidance and control of the horse.

It will not be necessary here to describe the marked characteristics exhibited by the jockey, the huntsman, the whipper-in, the groom, the postboy, the soldier, the dealer's lad, and the butcher. These have all different seats on horseback, each best adapted to their several occupations; for the man who all his life is accustomed to one particular style of riding and to one particular kind of horse will adopt a natural style, which marks the whole class of those adopting it.

In acquiring a good seat, there are four things necessary to be attended to—first, the position of the weight, so as to be sufficiently forward in the saddle; secondly, the fixing of the knees on the padded part of the flap; thirdly, the proper length and position of the stirrups; and fourthly, the carriage of the body.

The weight of the body should be well forward, because

the centre of motion is close to the middle of the saddle; and as the weight is chiefly thrown upon the breech, if the seat is far back it is not in that part, but near the cantle that it is placed. But by sitting well forward the weight is distributed between the breech, thighs, and feet; and the horse is able to rise and fall in his gallop without disturbing his rider.

The knees must be well forward to effect this seat, and also well in front of the stirrup-leathers; for if they are placed behind them the body is thrown too far back, and the hold is insecure. The object of all young riders should be to get as far forward as possible, so that the knee is not off the saddle; and they can scarcely overdo this part of the lesson by any effort in their power. Riding well upon the fork, with the knees upon the padded part of the flap, will ensure a good position if the stirrups are not too short. These should be about the length which will touch the projecting ankle-bone, when the legs are placed as above directed, but out of the stirrups; and when they are placed in them, the heel should be about one inch and a half below the ball of the foot. This latter part receives the pressure of the stirrup in road-riding, but in hunting or any other kind of field-riding the foot is thrust "home," and the stirrup touches the instep, whilst the pressure is taken by the under part of the arch of the foot.

The reason of this is, that in leaping the pressure on the stirrup is almost lost; and if the toe only is placed within it the foot is constantly coming out. Besides this, in the gallop the attitude is of that nature that the spring of the instep is not wanted, the weight being too much thrown upon the foot, if standing in the stirrups, and if sitting down in the saddle the feet should scarcely press upon the stirrups at all, and therefore the best place for them is where they will be most secure. The body should be carried easily, balancing backward and forward or sideways, as required, but not forcibly. Instinct is here the best guide, and the rider should follow its precepts rather than attempt to follow any preconceived rule. If the horse rears, he will feel called upon by nature to lean forward, and may even grasp the neck if needful, or anything but the bridle, which will only bring the horse back upon him. The body should not be held stiffly upright, but short of this, it can scarcely be too still, the loins being

slightly arched forward. The legs also should be as motionless as possible, and nearly perpendicular from the knee downwards; but, if anything, a little forward, the heel being well depressed and the toes very slightly turned outwards. The shoulders should always be square—that is, at right angles to the road taken; and whether trotting or galloping, neither of them should be advanced before the other.

If a man contemplates becoming a perfect horseman, he should consider in what way his riding will be chiefly required, and make himself master of that. If he only contemplates road riding, if he acquire a neat, easy, and firm seat, with good hands, he will do well enough; and having gained these, he may be satisfied. If he means to be a hunting man, he will find it will require a still firmer seat, stronger arms, and far stronger nerves, without which he will never become a “workman” across country; and, as to race-riding, no man need hope to arrive at any perfection as a jockey, unless from a boy he has been more or less in the habit of riding race-horses.

There are two things all but indispensable to the man who wishes to become perfect as a horseman—good nerve and good temper; without the first, he will want confidence; and without the second, he will neither have patience to be taught himself nor to teach his horse.

So far as seat is concerned, a great deal depends on the formation of the man. With very few exceptions, short, chubby-made men never make neat horsemen; and without any exception, such persons can hardly possess an easy and graceful seat. Such men are usually very round in the thigh; a formation much against a firm seat, without which no man can be a good horseman.

Huntsmen usually sit more down in their seat than gentlemen do. This arises from their keeping a constant eye on their hounds, which they can have with that seat more than they could standing in their stirrups as a jockey does. Huntsmen are apt to sit a little oblique on their horse. This is caused by their riding much with the rein in one hand, which hand is usually held rather more forward than other men hold it, so as to enable them to have more command over the horse; which is quite necessary for a man to have who has to get through thick covers at the risk of having his own and his horse's eyes cut or knocked

out by brambles, thorns, or hanging boughs. The way in which both learn to avoid these is extraordinary.

Connected with the seat is what is called in horse language "hands." When a man inquires what kind of bit he should use, he generally means what sort would suit his horse's mouth; it is of more importance to inquire what will suit his own "hands." This is to say, that a man with "good hands" can ride with any bit; while it is most important, where the rider has "no hands at all," that the animal should not be punished and confined by a cruel piece of ironwork. The bridle with which, in the first case, he would go pleasantly and gracefully, would, in the latter become neither more nor less than an instrument of torture, under the effects of which he could go neither pleasantly, gracefully, nor even safely to himself or rider.

One would naturally suppose that any man in the habit of riding would be anxious to acquire so necessary a part of horsemanship as good hands. Daily observation, however, shows that it is not so; and this inattention or indifference arises from various causes. The first is, the man knows nothing about "hands," consequently does not know that he has bad ones; again, if he does know this, as he merely rides an animal for health and exercise, and having found one who has no more "mouth" than his master has "hands," the latter has probably found himself safely enough carried, and wants no more.

Bad "hands" are much more frequent causes of bad riding than even defects of seat. Indeed, the things act and react, and an unsteady seat will produce bad "hands." Should a friend, then, ask you candidly about bits and bridles, and so forth, be equally candid with him. Ask him, "Has your horse a good mouth?" that is, tender; and "Does he often throw up his head?"

Is his mouth, temper, and disposition such that a curb-bit can be dispensed with? If it is, ride your horse, by all means, in a plain snaffle and martingale (not a nose one). If he requires a curb, use an easy one, and only make use of it occasionally. We would recommend all men with bad hands to use martingales; not exactly to keep the horse's head down, but to counteract the effect of their hands getting up, which is nearly always the practice with bad riders. Martingales too, are advisable, because with one it matters less *where* the hands are; they do not affect the

horse's mouth as respects the elevating or lowering of the head. All they can do is to use such force in pulling the reins that the horse cannot advance. Probably the rider will take the hint, and moderate his pull at the reins.

"Hands" may be considered the refinement of horsemanship, without which no man has any pretensions to the character of a horseman; he may ride boldly, and sit fast. This does not make him a horseman. "The difference between riders," says "Harry Hieover," is—"the one sits on the back of a horse, crossing a country in such form and style as the animal likes; the other causes the horse to do the same thing, but in a proper manner."

Good "hands" are to a man of fortune worth a diadem; in virtue of them, he is carried as no man wanting them can be. It may be said his money could purchase horses that want no hands to make them do their business handsomely. He might; but if they wanted no hands to make them go in such manner, still less do they want bad ones to thwart them when they do.

They are invaluable to the poorer man. They enable him to purchase horses hitherto thought little of from a bad style of carriage, and raise the price of the same horse, while in his possession, from, perhaps, eighty to a hundred and fifty.

Finally, "hands" are of the utmost importance to the horse himself, particularly in hunting; wanting them beats many a good horse before his time. Permitting a horse, in technical phrase, to "make a spread eagle of himself," and go sprawling along over a deep fallow, "sows him up" at once. It is quite a fallacious idea to suppose that a horse knows the easiest way of going himself. He, perhaps, would do so in a state of nature; but nature is not crossing a hundred-acre holding pasture, with twelve (or more) stone weight on his back.

CHAPTER IX

LADIES' HORSEMANSHIP—CHOOSING A LADY'S HORSE

ALBEIT we do not expect lady-readers to con the pages of books such as this, yet do we esteem it a serious omission that the art of riding, as practised by lady-proficients,

should be passed over without mention in such works; for surely a brother, father, friend, or, better still, a lover, may desire the knowledge which would enable them to speak, or, if need be, to instruct in these matters, "as one having understanding." We are not going to advocate the "first-flight" as an accomplishment, or torn veils and rent skirts, got in charging a "bullfinch," or rising, mermaid-like, bedraggled from the depths of a soft-banked brook, as triumph becoming our British fair. We rate too highly their precious limbs and beauteous faces to desire to see them exposed to the risk of injury. Yet who can assert that painter or poet can have a more beautiful subject for pencil or pen than a fair Englishwoman on a handsome horse, as she passes in the power of her charms, her eyes brightened, her colour heightened by the health and spirit-giving exercise, her hair floating, and her lithe figure swaying and bending in graceful pliancy to every movement of the glossy steed she manages with a woman's tact and a woman's pride? All this may be delightfully enjoyable in "the ride" in Hyde Park, or on the greensward of the avenue of the "old house at home," or the ten or twelve miles an hour may be enjoyed on the road, through bridle lanes, an occasional hand-gate and grass field, as, with spirits gay, they repair to "the meet" they so radiantly adorn.

Within the last quarter of a century, the maids, matrons, and widows of England have taken to the saddle in numbers unprecedented in former days, and far be it from us to wish it otherwise. A fine woman on a fine horse is a most graceful combination of beauty and power. Horse exercise is conducive to the health and spirits, and how it enhances the charms of the lovely Amazons, many a captivated youth can avouch with a loving sigh. It is, then, that he may understand the principles of graceful riding by the fairer sex, as well as for the lovely horsewomen themselves, that we pen a few practical lines on the subject.

Dress.—And here, upon the very threshold, we feel the danger and delicacy of our task. We have to advise the ladies on that subject most eminently within their province—dress. We shall not trespass on matters of fashion and taste, but hope they will agree with us that a habit cannot be too plain, if well made, well fitting, and well put on. Observe, we stipulate for light "ladies' cloth," strictly

so called, which will tear easily. The skirt, too, should be as short as is at all consistent with appearance. It need hardly be pointed out what danger there is in the preposterously long skirt; we have seen it become entangled with the stirrup, passing a rail, hedge, or even the horse's legs, and then the helplessness of the fair rider when unseated; for, should the horse himself fall, the rider is involved with him in a peril from which she cannot be easily extricated without injury.

Mounting.—Preparatory to a lady mounting her horse, let her steadily and without bustle approach his near shoulder. The quietest animal will occasionally start or even kick when suddenly approached from behind. It is also to the advantage of the animal to see his rider as much as possible; though some would seem to think otherwise, by their *coup de main* mode of "getting hold" of the animal.

In assisting a lady to mount, two persons are necessary. The groom to keep the horse quiet, which he should do by standing in front of him, with one rein in each hand, holding the bridle-rein close to the bit. The other attendant—a proud privilege for the favoured cavalier, or a loving duty for the brother or friend—has to assist the fair one to mount. This he does by placing himself near to and almost in front of her. Having joined his hands by interlacing his fingers with each other, he stoops, and putting them near the ground receives the lady's left foot, which she should place lightly but firmly in them, taking care that no part of her skirt is under it. The left knee should be kept firmly straight, to give a safe purchase while she is being lifted perpendicularly and springily into her seat. Before this lift, however, the lady having regulated her habit, must stand perfectly erect, and taking the bridoon-rein loosely over the thumb of her right hand (holding the whip between the thumb and forefinger), she lays gently hold of the upright horn of the saddle. Her right side being now close to it, the lift is easy of accomplishment; a spring from the instep, simultaneously placing her left hand on the assistant's right shoulder, will land the lady safe in her seat.

Being now in the saddle, the lady should lay hold of her habit with her right hand close to the knee, lifting it so as to allow the right knee to rise and fall well home into the crutch, and holding it there firmly. This will be much

assisted by drawing the heel backwards, by which the muscles of the calf and the *tendo Achillis* come to the aid of the position. The left leg should hang easily, not resting the weight of the body on the stirrup; if this is done, the foot naturally turns outward, inclines the body to an insecure balance, and gives a wavering and ungainly appearance to the rider. To avoid this, keep the left knee pressed against the saddle, depress the heel, and turn the toes slightly inwards.

The position of the stirrup has much to do with the seat of the female equestrian. The stirrup must be correctly adapted to the length of the lady's foot when seated in a square and exact position in the saddle. The *modus operandi* is as follows: Let the stirrup-foot hang down freely from the hip-joint, the knee slightly flexed, the toes raised and turned towards the horse's side. Then, while the foot is immovable in the stirrup, let the strap-holes be taken up and permanently kept at the approved length. The pressure of the foot in the stirrup should come alone from the toes to the arch of the foot, which will give the desired elasticity of movement in the quicker paces of the horse. Should the lady be impelled to the endeavour to retain her foot in the stirrup, her weight must preponderate on the left side. On the contrary, if the stirrup be too short, it necessarily gives a rolling motion to her body, destructive alike to grace, elegance, and security of seat, and will prevent her seating herself sufficiently back in her saddle. Thus much of seat and stirrups. The arms should be held freely and unconstrainedly, but *near the sides*. The motion of the bridle hand must be, like that of skilled pianoforte players, confined to the wrist. From that alone must its action be derived. The motion of the lady's hand should be confined to the wrist, the action coming from it alone. By the management of the reins, in concert with the yielding or retraction of the wrists, the horse is guided in his paces. By this mode the sensibility and goodness of his mouth is preserved; the beauty of his action is developed; steadiness is combined with security in his paces; and the safety of his rider is secured. The degree of command which the animal can be placed under entirely depends on the degree of proficiency acquired in this branch.

There are four motions requisite in guiding a horse:

To go Forward.—Lengthen the reins, and give the animal his liberty. For this purpose the lady's hand must be guided by the action of her wrist, and, at the same time, she must apply gently her whip. Here, it is proper to remark, the lady's bridle, or left, hand must never be left inactive, but, by practice, she must endeavour to understand the art of feeling the horse's mouth; should the bridle hand not be kept in constant use, this will never come easy to the rider, the hand will be unsteady, and the horse will become the same.

To go Backward.—The reins must be shortened a little, the back of the hand turned down, the little finger next the body; the weight of the rider should be thrown back, with the little finger slightly pulled in towards the waist, then the horse will readily step back.

To Turn to the Right.—The hand must be turned upwards, which will direct the little finger to the right. Throw the balance of the body into the turn, by inclining the bust to the right and applying the whip, which will cause the horse to move forward as he turns, obey the hand, and cross his legs one over the other correctly.

To Turn to the Left.—Let the hand be turned down, so that the little finger may be directed to the left; the bust must also be turned to the left, and the hand up, with the left heel applied to his side, and the whip to his right shoulder.

Dismounting.—The remarks on mounting should be remembered here. Should hired servants only be at hand, there is some skill required to avoid the *désagréments* or inelegance of a lady being lifted from the saddle in the arms of a groom.

Previous to dismounting, the attendant must stand by the horse's head, holding the reins close to the bit, to keep him as steady as possible.

The lady, having removed her foot from the stirrup, and passed her hand down to free her skirt, etc., from the chance of catching to the saddle or stirrup, should remove her knee from the saddle-crutch, at the same time taking the precaution to disengage the habit from that side. Then holding the crutch with her right hand (the rein hanging loosely on the thumb), and placing her left hand on her attendant's right arm, near the wrist; his arm being extended for the purpose, she must spring lightly and clear

from the saddle, slightly inclining the bust towards the horse's shoulder.

By this method the lady will cleverly disengage herself, and descend gently to the ground.

The following are Mr. Waite's "Maxims": "Be particular to avoid nervousness and hurry, either in mounting or dismounting.

Take time, and have everything correctly arranged before starting; serious accidents have occurred from haste in starting off.

Arrange the habit and length of stirrup, and have the saddle-bands and buckles properly examined before the journey is begun, to prevent having to stop on the road.

Be careful to keep the hand active, and watch the movements of the horse; by this means the rider will never be thrown off her guard, and will be prepared for every emergency.

Keep the horse's mouth always in play, so as to keep up its fine feeling, indispensable to his correct guidance.

Never allow the reins to hang loosely on the horse's neck, crutch, or pommel of the saddle. This oversight frequently causes serious and fatal accidents.

Always use double reins. Should one become useless, there is still another to rely upon."

Mr. Waite winds up by justly observing that an elegant and accomplished equestrian becomes an equally graceful pedestrian, from the improved carriage acquired from proficiency in the former accomplishment.

To become an elegant pedestrian is no mean task, nor easy to accomplish. Yet it is of the utmost importance to a lady to achieve it. How often, in our experience through life, have we met with a lovely face and perfect figure—everything that could constitute the perfection of female beauty, *while at rest*; but once in motion, the illusion is dispelled by a bad carriage and shuffling gait, and the perfect form becomes commonplace. These two detractions to beauty can be entirely eradicated by attention to the following directions, which apply equally to walking and riding:

Keep the bust and head erect; the shoulders well thrown back. The motive power to proceed from the hips alone.

Perseverance in these directions will soon give all that is required for a graceful and healthy carriage.

Finally.—At all times trust to your reins for security in

cases of danger. Never grasp the pommel of the saddle; and never use a "habit-brooch."

Choosing a Lady's Horse.—The general ideas in BUYING A HORSE are found under that heading; the special merits of a lady's horse are worth considering. It should be remembered, and oftener than it is, that a "weed" should never be selected to carry our "fairest flower"—that however sylph-like and fairy-formed our Venuses may appear, they are mostly ten stone, "horseman's weight," despite their affectation of slinness; and this, with habit, hat, gauntlets, whip, a spacious side-saddle and crutch, extra girths, shoe stirrup, etc., adding twenty pounds at the least, asks something more than a Queen Mab's grasshopper steed. We are not going to dilate on a horse for the hunting Amazon we have already spoken of, or we should say a four-year-old hunter, with good mouth, great action, steady at fences, and up to thirteen stone was wanted; just such a horse as is *not* to be had for the catching. Lord Maynard, a great man across country in the last generation, used to say, when he heard a horse mentioned as excellent to carry a lady: "I'll buy it; if he will carry a woman *well*, he'll carry me better."

As elegance must be studied in a park hack, a lady's horse should have a considerable show of blood, and should seldom exceed fifteen hands in height; the paces should not be rough, and an easy slow trot, the pace of health, is a valuable qualification. The canter is, however, of the chiefest consequence, and that it be formed naturally and handsomely, the neck gracefully curved, and the mouth having pleasant and good feeling. There are natural canterers, they will last at it, taking to it, and on the proper signal dropping into the trot or walk, without roughness, boggling, or changing of legs. But the first and grand consideration is going safely; for a horse deficient in that respect is, perhaps, always most liable to fall in his canter. The most graceful canterers may be observed to lead generally with the off leg; but no doubt there is such an error as a horse, both in his canter and gallop, going with the wrong leg first, to the considerable uneasiness of the rider; this is most felt upon worn and battered horses, which change their legs to procure a momentary ease.

A naturally timid, nervous colt, however we may improve the infirmity by proper treatment, will never be a perfect

lady's horse. He should be naturally bold and fearless, and from being properly educated, should not know fright ; for as ladies are naturally more easily alarmed than men, so in proportion should their horses be bolder, for if both get alarmed, the danger is imminent. Many ladies would fear to be put on a high-couraged horse. Fair ones, your fears are misapplied. High courage, in man or horse, is your best safeguard, and will induce both to bend with cheerfulness to your slightest will ; while the timid, actuated by fear, seeks his own safety, nor heeds the danger of his fair mistress.

Some masters teach their lady-scholars to ride on either side of the horse, and recommend to have the pommel of the saddle made very low, that the knee may not be thrown too high ; and also that the pommel be made with a screw, to be taken off in case of a lady wishing to change sides on any particular account. Ladies' riding shoes should be always straight-soled, as, in case of accident, there is the risk of the foot hanging in the stirrup, when the sole, according to the old fashion, is hollow next the heel. A lady's horse should be particularly accustomed to walk off quietly ; and with respect to his improvement in that pace, it is accomplished by touching him gently with the whip.

"Harry Hieover" has some pertinent though diffuse remarks in his "Hints on Educating Horses," from which we select some relating to the training of a lady's horse.

Although by no means advocating a riding-school education for a hunting man or a hunting horse, yet it is the only place where a lady's horse can be properly made. There is a peculiar style of going that is only to be acquired "here"—a handiness that cannot be taught on the road ; turning safely and easily cannot be learned elsewhere. Changing voluntarily the leading leg, so indispensable for this horse, must be practised by the figure of eight, to perfect him in it ; and till he is perfect in this, he cannot carry a lady safely. She will find it necessary, if riding in crowds, to turn her horse often suddenly, to avoid coming in contact with different objects. Suppose a horse going a quick canter, leading with the right leg, something coming suddenly up may oblige his rider to turn quickly to the left. If the horse does not change his leg, it is an even chance whether he does or does not let his legs interfere, and come on his head. Here he may be taught that quite necessary

qualification in a lady's horse, to moderate his pace, stop by degrees, or stop short, in accordance with the voice that directs him ; a lady's horse should be perfect in this with the reins resting on his neck. Why this is learned so much more readily in a school than elsewhere is, that the animal's attention is solely occupied by his rider's voice and movement, whereas out of doors it is more than divided by other objects. Independently of this, there is a confinement felt by a horse when encircled by four walls, that he, of course, does not feel in any open space, that makes him obedient.

In a school there are found guns, flags, drums, trumpets, umbrellas, and every other monstrosity to which a lady's horse should be subjected ; it therefore follows that in such a school a horse would be placed in a situation to see more strange sights in six weeks than in ordinary situations he would see in six years. For instance, a lady might ride her horse about Bath and not see the colour of a regiment once in seven years ; in London it might happen she never rode at an hour when regiments were moving ; consequently years might elapse, and the first time her horse saw such a sight he would start at it ; and so on with any unusual thing that came across him ; but in the school a day makes him conversant with everything of the sort. Let a man walk fifty yards' distance from him round the school with a banner, he hardly notices it ; get nearer to the man by degrees, and in an hour or two the horse will walk with the banner fluttering before his face (so with anything we wish to accustom him to see) without alarm. The great mistake people make is in thinking that by doing too much at a time they accelerate what they wish, when, in fact, they retard it by such means.

If, for instance, we wish to teach a horse to stand fire— if we let off a gun, we should alarm him to such an extent that it would perhaps take a month to reassure him, if we even did it then. A more judicious man might let off a small pistol with a little powder in it. This is ten times too much. A flash in the pan is too much, except at a great distance. First burn a few grains of gunpowder so as to show no flash, while he is eating his corn in the stable ; let him smell that ; even this will arouse his attention, but, while it accustoms him to the smell, will not alarm him. Begin by clicking a pistol twenty yards from him ; then put powder enough in not to make more ignition than the

light of a rushlight ; go on by imperceptible degrees, and in two days he will hear a musket go off without the least fear. Alarm him by the report of a gun at first, it will take years, perhaps, to reconcile him to it, if it is ever done ; but by never creating alarm, he may in a week be brought to stand by a cannon without wincing.

Absolutely hurting or absolutely alarming produce nearly similar results in brutes as in the human race. A person that has been pursued by an infuriated ox has the same dread of an ox as another who has been tossed on his horns—perhaps more, if the latter was not much hurt, the anticipations of the former being probably much more terrible than the tossing of the latter ; as, in the ordinary circumstances of life, the dread of an event is often more horrible than the realisation itself. Many a man who has worked himself into a fever and high state of nervous irritability during the night from the apprehension of an operation in the morning has borne that operation firmly, and allowed that his fears had greatly exceeded the reality. Fear is a most powerful agent, and, where it is once awakened, a most difficult one to tranquillise.

With horses, a minute awakens fear that years will not eradicate. We cannot reason with them, or explain away the cause of their alarm ; so, if any irrational animal is once hurt by anything he sees or hears, or is seriously alarmed by it, hearing or seeing the same thing without sustaining any injury from it a hundred times afterwards barely suffices to reassure his fears of it. Frighten a boy by the appearance of a ghost, and let that ghost strike at him, he is alarmed ; throw off the sheet, and let him see it was his sister dressed up, his alarm is gone ; nay, he would probably think less of ghosts in future. We cannot do this with animals ; so, in educating them, nothing but length of time can overcome terror ; and till terror is assuaged, they have not even the instinct nature gave them.

Ladies may fancy that if a horse has a tender mouth, there can be no fear of his going off with them. He would not on any ordinary occasion or under any ordinary excitement ; if, however, he gets frightened, mouth will avail nothing ; he becomes totally insensible to pain. The more timid, therefore, he is, the more dangerous he is ; and, *vice versa*, the more courageous, the more safe. Why are veterans more to be depended on than raw troops ? Mainly

because the former, from habit, are more collected in moments of danger than the latter.

Thus far of schooling. Any green field that is not too hard forms an excellent practice-ground; and should it be varied by what is termed in the Midland counties "ridge and furrow," it will additionally improve the general activity of the pupil, his action, and the use he makes of his shoulders. Cantering him continually in small circles, and, as he is meant for a lady, chiefly to the right, will teach him to lead with his off leg, and will bring his head into the right place, and his weight upon his haunches, better than any other discipline we can adopt. Observe that no horse can have a good mouth unless he has powerful and well-shaped quarters; also, that his lightness in hand is in most cases pretty exactly proportioned to his strength behind the saddle. The hardest puller of all is the brute that pulls from weakness; if you could stop him, he cannot stop himself; and, having given you half his weight to carry in your arms all day, it is lucky if he does not finish by putting the whole of it on your neck and shoulders in one of those complicated somersaults that a bad one is so expert in making.

CHAPTER X

DRIVING.

THE harness horses here to be noticed are the gig, or single-harness horse, usually adopted for light or two-wheel work in dennet, tilbury, or dog-cart; the carriage, brougham, or cab-horse, for a heavier and slower vehicle; and ponies, whose uses are as various as their form and stature. The general gig-horse is too often merely the cast-off of the hunting stable, or even of the racing stud; the clumsy, unsteady, or slow being put into harness. A well-bred horse for the lancewood shafts is, however, too valuable an animal to be thus slightly considered. Others are merely undersized carriage-horses with the Cleveland or Clydesdale blood in them, and these, if got by well-bred or thoroughbred sires, are useful and handsome animals. Of the cab, brougham, or carriage-horse there are several

varieties. In olden times, before the idea of elegance was attached to lightness, we had a horse which truly deserved the name of the *coach-horse*, rather than the more modern one of the *carriage-horse*; for as we have already said, when treating of this variety, the old coach-horse was merely the modern lighter cart-horse, as we see him in the wheel-plough or in the unicorn railway waggons of London streets.

Someone may ask what has become of the sort of horse specially bred for the fast coach. Like other articles for which a remunerative demand has died out, they are not now produced on a grand scale. The nearest horse to the stamp is that used in our horse artillery, and a very good sort it is. These horses, bought when young, though they are thick and strengthly, learn such habits of activity, that no one who has watched their evolutions at Woolwich, Portsmouth, Chatham, or elsewhere, can help admitting that great strength and great activity are contained in them. But where there is want of "blood," sustained speed must not be looked for. Doubtless, where mere activity for short distances is wanted, the less highly-bred horse may seem not to suffer from the comparison, but a speed kept up is not his forte. Heavy as a loaded omnibus looks, if you wanted it bowled along at great speed for a long distance, four thoroughbreds would beat four of these artillery horses; but for work on London stones or in a bad road, where stopping and starting would fret the high-bred cattle, specific gravity, strength, and short legs carry the day. The wind and game of the thoroughbred carry him through his task better than any other horse, but it is only where these are called upon that he shines so pre-eminently.

There is, however, another perfection that the highly-bred horse has: he does any work with more willingness and cheerfulness than the coarse horse; and this is why, for any purpose to which his strength is adequate, he will be found, on an average, so much pleasanter than the coarser animal. It is true, the inferior-bred horse is quite as free, and perhaps even more inclined to frisk about while quite fresh, than the thorough or higher-bred one; but this only lasts while work is play to him. At real labour, his energy leaves him; and once tired, the game is up. This has long since been found out; so, as our expectations as to distance and pace have more than gone hand-in-hand with the increased

goodness of roads and improvement in vehicles, we have found improvement in breed absolutely indispensable—hence the change in the carriage-horse.

Our other harness horse is now the brougham or cab-horse. For a perfect cab-horse, he must now be kept to that vocation only. To be perfect, he requires many qualifications not easily met with; indeed, some of them are rare to get combined. In double harness a horse may be a little awkward or lazy, inclined to bolt, or even to run away; may be somewhat restive, or a little unsafe in his action; still, with a good partner, a man anything of a coachman can make him do his business at least tolerably. Even in a gig-horse there are many little imperfections that may be compensated for by other qualifications, for he is wanted to be fast and lasting. We may put up with many serious objections in such horses for the sake of pace and style of going. Impatience would, to many persons, be a very serious fault in a horse for single harness. A clever driver of gig or dog-cart will not mind a hasty-tempered one for this purpose; but this would be intolerable in the cab-horse.

He must be, or should be, singularly handsome, of commanding size; must be fast, or at least extremely quick in all his movements; be able and willing at one moment to go fourteen miles an hour, the next be as willing to walk, if wanted, at the rate of three. He must stand motionless while his aristocratic owner enjoys his colloquy at the coroneted carriage window; must not want the application of the toy-whip, or pull so as to stretch or twist the fingers of the white, lemon, or pink kids. To want holding at a door would render him useless, for who is to hold him? he must know by instinct that minute piece of humanity, yclept "the tiger," is before him, for seeing him is out of the question to a horse in harness. In going, the slightest indication on his mouth must suffice. He ought never, if a well-taught cab-horse, to voluntarily stop, or attempt to stop, at doors because he has often stopped at them before. This is the habit of butchers', bakers', and such plebeian horses; for though our scion of nobility or aristocracy may also at times stop at the same doors, it might be extremely inconvenient that his horse should indicate that his master did so.

Having stated some actions that the cab-horse must not

perpetrate, we must look to the action he must have. This is precisely that which, some fifty years since, would have caused him to be rejected by any good judge as a "clamberer"—a style of going then considered as of the very worst sort; and so, in fact, it is for use, for such goers must tire. But the cab-horse is wanted for show; so the more parade he makes about what he does, the better he is thought of. One animal of this sort, not long since, was actually bought at seven hundred guineas, solely from his lofty action.

The learned and facetious author of "Adventures of a Gentleman in Search of a Horse," whose sportive pages contain more law, wit, and practical advice than scores of more pretentious volumes, observes: "It is marvellous how few people keep fixedly in mind the nature of the work which they will require the horse to perform. Not one horse in fifty that is good under saddle is equally so in harness, and *vice versa*. I once had a galloxy that rarely stumbled in harness, though he could not have carried the best rider, of feather weight, half-a-dozen miles without a sorry fall. Yet he was perfectly sound, and continued sound for the five years he remained in my possession.¹ Many horses do well in harness that are totally unsafe to carry weight; in fact, few of the most 'showy' and 'splendid' harness horses of the dealers' stables are so broken until they have proved their inability under saddle. For myself, I make it a rule not to put a horse in my stanhope that I have not taken a short trial of in saddle. When on his back, I am his master; when at his tail, he is mine; and I like to know something of his temper before I put myself in his power."

Harness work is, of course, at the same pace, much less severe than weight-carrying, with a modern-built trap or carriage, and good roads. It follows, therefore, that many defects, unpardonable for saddle, are comparatively immaterial. Harness work, too, is done usually on the trot; hence it is of less consequence that he should walk or gallop well. Still, there is no doubt that in proportion as the animal is sound, and good in all his paces, his value is greater for whichever service he is designed.

Few people are very particular about driving a horse in a boot, or with a blemished knee, while the blinkers will hide

¹ Sir George Stephen.

any obvious defect in the eyes. Thus other serious obstacles that occur in the purchase of a saddle-horse is removed.

Subject to these preliminary observations, we would suggest that the form of a horse for single harness should be carefully considered; a full shoulder and a well-filled-up loin are of consequence; the action should be free, and rather high than otherwise; the body should be compact and close, the legs short, and retundity the character of the whole.

Steadiness is a great virtue in a gig-horse; for his duty is in the streets, where every provocation is given to the contrary, and where the least swerving from the direct line may cause infinite mischief. It is quite impossible to decide whether a horse deserves this character till he has been tried; but a single drive down Oxford Street and Holborn Hill will put him sufficiently to the proof. A man who buys a harness horse without first driving it himself is a fit subject for a commission of lunacy. It is not enough to put him in the break; he should be harnessed at once to the gig or dog-cart; and it is prudent to observe closely how he bears the ceremony of being harnessed, and what kind of a start he makes. Much may be predicted of his qualifications for draught, or at all events of his familiarity with the collar, by the degree of quiet with which he allows himself to be put to. If the ostler runs alongside of him at setting off, as is often the case, you may be sure that the horse is distrusted; if you distrust him yourself, have nothing to do with him.

Sir George Stephen, in his little manual, already referred to, gives the following illustrative anecdotes:

"One of the best horses which I ever had in my life, as a gig-horse, was a little animal scarcely fourteen hands and an inch high, which I bought of a dealer named Thompson, an excellent judge of a horse for harness. His case was in some respects peculiar, and worth mentioning. I bought him for a relative, of very light weight, but a timid rider. He was about half-bred, and inclining in form to a cob. My relative rode him for about two or three months, during which time either he or the horse so contrived it as to fall every ten days; the last fall was a very serious one, and the knees were much blemished. He would not have produced ten pounds, though I had given nearly forty. I obtained permission to break him into harness, which I did myself.

without any trouble or difficulty, His owner would not take him back again, but gave him to me. A year or two afterwards I refused sixty for him. It is a singular fact that, for the first two years that I had him (he remained with me nearly five), he would allow nobody to drive him but myself. If other hands held the reins, he would swerve and shy, and at last perhaps fairly bolt ; but in mine he never committed a fault. I used to drive him with a sharp curb, and a very little whip ; but my command of him was so complete, that I have urged him to his full speed, thrown the reins on his back, and stopped him in an instant by my voice ! The inference which I would draw is, that a purchaser should always try a new harness horse for himself, and not trust to the steadiness evinced while the reins are in his owner's hands.

I cannot dismiss my little horse without mentioning another incident connected with him, to me particularly interesting. Like most Cantabs, I acquired at college an unlucky taste for tandem driving. I have driven my tandem many thousands miles in safety, and used at times to exhibit at once my folly and my skill by threading the narrowest or most crowded streets in London. It is scarcely necessary to add that eventually I broke my head ; though, in justice to my skill, I must declare that the fault was not mine, but my coachmaker's. The splinter-bar had been morticed into the shaft at the very point where the latter was rendered unsound by a knot in the wood. One day, after a long journey into the country, and within a hundred yards of my own door, the shaft broke, and I was precipitated over the shaft-horse, under the heels of my old favourite. There I lay, insensible. The awkward hands who came to render assistance wanted (as I was afterwards informed by my servant) to move the horse away from me, at the risk of putting his heels upon my face ; but move he would not ; nor would he allow a foot to be raised, till at last I was fairly lifted up from under him, and then, though not till then, he readily changed his position, and moved wherever they pleased to lead him. I have no inference to draw from this, except a caution even to the most experienced whips against tandems ! I mention it as a tribute of gratitude to my poor horse, who showed at least as much sense as his master. Young gentlemen, however, who disregard my caution, as doubtless nineteen out of twenty will, may thank me for a hint of which I

have experienced the advantage. Tandems are rarely seen now ; but those who still drive a leader generally attach his traces to an eye in the traces of the shaft-horse : this looks better, but is not so safe as the old-fashioned way of hooking them to the end of the shaft. By the first plan, the stumbling of the shaft-horse is aggravated into a decided fall, for the animal is actually pulled down by the continued motion of the leader ; by the old plan, the shaft-horse is allowed time to recover a casual trip, and is even assisted ; the weight of the carriage being relieved by the shafts being retained by the leader's traces in a horizontal position. The greatest danger in tandem-driving arises from the stumbling of the shaft-horse ; it therefore follows that if either of the team is distrusted in his feet or legs, he should be driven leader."

No man, if he can help it, should ever buy a mare for harness ; no dependence whatever can be placed upon them ; they may be temperate and steady for months, or even years, and yet when the season arrives, will kick your chaise to pieces. "I drove a little mare for nearly a year with the galloway that I have just been mentioning ; the following spring she kicked herself out of harness three times in the course of as many weeks. Purchasers are often tempted by their inferior price—a mare, *cæteris paribus*, being generally five or ten pounds less valuable than a gelding ; but they forget that it is this very capriciousness of character that reduces their value, because it unfits them for the collar."

It can scarcely be necessary to remind a purchaser that any scar on the shoulders, or even under the tail, should lead to a suspicion of tenderness in these parts, not very consistent with length of service in harness ; and in the same way that a blenished hock should excite a doubt whether the splinter-bar is not equally damaged. If it can be managed, it would be prudent to see a horse driven in his master's trap, were it only to take the opportunity of observing whether the dashing iron or the floor retains marks of the shoe, or has been recently repaired in order to efface them.

Here is one more of the experiences of the author of "Caveat emptor." "I once was trying a harness horse in company with his owner, but not in his owner's chaise ; I had no suspicions, for I was to receive a warranty of 'sound

and safe in harness,' but he appeared to me to show a great deal of work, and therefore I wished to see the stanhope that he had been accustomed to draw. 'It was at the coachmaker's.' I offered to go there, and proposed that we should drive to the shop. 'It was a long way off, on the other side of the water.' I replied that my time was of no consequence; for whenever I perceive hesitation, I always feel distrust. 'It was taken to pieces to be fresh painted.' In short, I found that the chaise was not to be seen; and therefore see it I would. When we returned to the stables, I took an opportunity of saying privately to the ostler that I thought the horse had been over-weighted, and I wished to compare his owner's stanhope with mine—'When would it be at home again?' He could not tell, but at once referred me to the coachmaker's; this was all I wanted. I proceeded there without delay, and anticipated his customer by only ten minutes; this was enough, however, to apprise myself by ocular inspection that the dashing iron had been kicked away, only the week before, by the horse warranted 'safe in harness'! About a month after, not having yet found what I wanted, I read an advertisement in the paper of 'a horse, stanhope, and harness to be sold together; the stanhope, almost new, and very recently from the coachmaker's shop; the horse possessing the grandest action imaginable, and making, altogether, the most elegant turnout in London; *bonâ fide* the property of a gentleman who might be referred to.' I went to the place, and at once recognised my old acquaintance, whose action, *d posteriori*, at least, had been as 'grand' as could reasonably be desired; and as for the stanhope, the most practised eye in Long Acre could scarcely have discovered the true cause of its having so recently quitted the coachmaker's loft! Another striking specimen of *gentility* in horse-dealing transactions!"

The horse is "put to" for going in shafts in an entirely different manner than if to be driven with a pole. If single harness, the shafts are tilted up and held there by one man, while another backs the horse until he is under them, when they are dropped down, and the tugs slipped under or over the ends of the shafts, according to the formation of the tugs, some being hooks, and others leather loops. Care must be taken that they do not slip beyond the pins on the shafts. The traces are now attached to the drawing-bar, the breeching or kicking-strap buckled, and

the false belly-band buckled up pretty tightly, so as to keep the shafts steady. In four-wheeled carriages it should be left tolerably loose when a breeching is used, to allow it to have free play. The reins are untwisted from the terret, and the horse is put to. For double harness, the first thing is to bring the horse round by the side of the pole, and put the pole-piece through the sliding ring of the hames, the groom holding it, or else buckling it at the longest hole while the traces are being put to; as soon as this is done the pole-piece is buckled up to its proper length, each coupling-rein buckled to the opposite horse's bit, the driving-reins untwisted from the terret, and the two buckled together, and the horses are ready. The leaders of a tandem or four-in-hand are easily attached, and their reins are passed through the rings on the heads of the wheelers, and through the upper half of the pad terret.

Driving a Pair has one grand leading principle, without which the others are all but *nil*. It is the "putting" the horses so well together that they may draw equally, and step in time with each other. This latter, however, can only be effectively done when the animals match in action and temper, and in height of step. We note temper as an important ingredient, because if one is a fast-goer and the other a slug, the amount of whipcord necessary for the slug will urge the free-goer to take all the work upon himself. A partial remedy for this is giving more length to the coupling-rein of the slow one. In watching the working of the two horses, the pole-pieces should always be the guide; and if both are slack, with the end of the pole steady, and neither horse shouldering it, the driver may rest contented that his horses are each doing their share. If, however, the pole is shouldered by either, that horse is a rogue, and is making the other do more than his share, keeping the pole straight by the pressure of his shoulder, instead of pulling at the traces. On the other hand, if either horse is pulling away from the pole, and straining at the pole-piece, he is doing more than his share, and his coupling-rein must be taken in accordingly. Sometimes both shoulder the pole, or spread from it, which are equally unsightly habits, and may generally be cured by an alteration of the coupling-reins of both horses, letting them out when they "shoulder," and taking them up for straggling.

In Driving a Single Horse, the near rein is passed over

the forefinger of the left hand, and the off rein between the middle and forefingers. The thumb presses the near rein fast against the forefinger; and if both reins, instead of being allowed to fall over, are passed between the little finger and the third or "ring finger," it will much improve the grip, especially when the muscles are tired with long driving, and the attention is slack. We protest against the bearing-rein as a general piece of harness; it is merely a cover for careless driving. It can only be allowed where an old horse has been so accustomed to hang upon it that he is unsafe and uncomfortable without his habitual tormentor. The cab-horses are as hard-worked as ever, yet they are now scarcely half as often down as when the bearing-rein was the rule, and not the exception. With three legs and a swinger, while their head is free, they seldom make a mistake. Why, then, put on this useless restraint to a vigorous and spirited animal? Do not, however, fall into the error of holding too tight a rein yourself. It will gag your horse and lead him to unsure footing, while a loose rein is bad at the opposite extreme. "Feel the horse's mouth" so as to guide him on either hand, and assist him in a difficulty should he make a fault in going downhill.

CHAPTER XI

CARE AND TREATMENT OF A HORSE ON A JOURNEY

THE maximum which a good hack should perform is fifty to sixty miles in the day or night; but if this is to be continued, thirty to forty is fair work, and should not be exceeded. But let no man ride his saddle-horse a long distance, unless sure that he is in full condition from the "hard-meat" system we have advised under *Conditioning*. Should, however, any Mr. Verdant Green try a journey on a horse fresh from green fodder, with a burthen of grass flesh upon him, let him ride moderately, and see that he has good corn, or a month will not be too much to get him into condition.

Many persons ride long stages—we have heard of thirty or forty miles—without baiting; but it is inconsiderate, and is

injurious to the horse. Moderate feeds at the different stages, and an ample one at the last, are most beneficial; a quartern of oats, with a handful or two of beans, are sufficient quantities during the day; at night, half a peck of oats and a few handfuls of beans; so that a hack upon a journey of considerable length may be allowed from a peck and a quarter to a peck and a half of oats. Hasty travellers will find an advantage in starting at a very moderate pace, and in finishing the last three miles of a stage, especially in hot weather, as leisurely as their haste will admit; since by such means they will save time, as their horses, on reaching the inn, will be the sooner dry and ready to feed. On the road, the horse may be indulged every eight or ten miles, if he require it, with a few go-downs of water; and in hot weather, over hard roads, and with fast travelling, when the shoes acquire a burning heat, it is most refreshing to the horse to ride him over his pasterns, momentarily, through any water that may be accessible. But a caution of much moment must have place here: be the weather hot or cold, a horse in a state of perspiration should never be kept standing any length of time in water.

In fast travelling, every horseman of common sense will ease his hack up the hills; in going down also, if he values his own neck and his horse's knees, he will do the same.

When a hack of willing disposition and quiet temper does not start readily, or stops on the road, the rider may safely conclude that he is suffering from some bodily affection, or something galling or misplaced in his furniture. Let him dismount instantly and examine him carefully. It may be colic, it may be strangury, and if so, urging him onward is as barbarous as it is useless. Should his nostrils become dilated, his ears sweat at the roots, and his flanks stare, with an attitude as though attempting to stale, the case is clear. Lead him about gently, and the strangury will probably cease, and urination will follow.

At the risk of a few repetitions, we will append the "treatment of a horse on a journey" as given by the author of the clever little volume entitled "How to buy a Horse":

"As I have promised, I will add a few words respecting the treatment of a horse on a journey. The main points for consideration are: What is the distance you have to go, and the time in which you are to accomplish it? Presuming that you are one of those who will rather 'take

time by the forelock' than distress your horse by forcing him to make up by pace for the hours you have consumed in the enjoyment of creature comforts, let him be fed full two hours before the time of starting, and that you begin your journey very leisurely, and proceed at an easy pace, well within your horse's powers, for the first ten miles; after which, as old Markham somewhat quaintly says, 'In God's name, begin your journey.' If you have a strong, active, and hardy animal under you, step out moderately for another ten miles, ever taking advantage for this purpose of the level parts of the road, and easing your beast both up and down hill; for a declivity occasions almost as great a strain on the forelegs as proportionally rising ground will upon the hind. Having ridden thus far, pull bridle, and walk your horse for a couple of miles or so, that he may recover himself in some measure, and get tolerably cool.

Now put him into his stable, or a box if you can get one, and trust not to the tender mercies of an ostler to rub him perfectly dry. These gentry are too much accustomed to the rough treatment of farmers' nags and post-horses to pay any extraordinary degree of attention to a valuable hack without supervision. Moreover, if your horse be of full blood, it is ten to one but he will have the common trick of lashing out behind while being cleaned, which almost all these horses have, and which to me is 'right pleasant to behold.' I love to see their little waywardness of temper disdainfully displayed in this manner; more especially as it very rarely arises from vice, for they constantly kick with the leg that is farthest from the person cleaning them, and seems to be only done as a vent for feelings which they cannot control. Your ostler, however, who seldom handles an animal of this stamp, sees broken ribs and legs in every kick; and unless you stand by and assure him your horse, with gentle usage, will not kick him, either bullies him and knocks him about 'to make him quiet,' or leaves him to dry as he best may.

Having, then, superintended the cleaning of your horse, water him moderately if perfectly cool, and give him about a quartern and a half of corn and beans, not more on any account, for that would only distend his stomach, and do him harm; then leave him to himself for a couple of hours ere you resume your journey. I confess I am one of those

who never could admire the feats that are occasionally recorded of riding and driving horses enormous distances in the course of the day, and that, too, in a short space of time. A journey of forty or fifty miles *per diem* is as much as any humane man, fond of his horse, ought to perform. Let those who choose to go double the distance boast of their exploits in this way if they please; to my mind, it is anything but creditable to them, and I can never forbear the thought that with respect to horse-flesh they are as ignorant as they are cruel.

While a horse has any work to be done during the day, he should not be allowed any hay; and if fed four times, the extra half-quartern allowed him will make up for any deficiency in this article of diet. At night let his feet be stopped, and all the other rules which I have laid down for his comfort be attended to. It is a very bad plan so to divide your work as to complete the last stage at night. Always, if possible, let your horse be housed early, that he may have plenty of time to rest before his next day's work; and this also will give you an opportunity of looking to him oftener than you otherwise could, and of having cloths properly aired for him, if, as is frequently the case, you find the ostler prepared with a set that has been put on another horse *because he was wet*, and that are now destined for your horse because *they* are wet, and require to be dried.

At almost all inn stables a horse's back is the drying ground for damp cloths, but it will be your own fault if you suffer your hack to be used for this purpose. The main point is to endeavour to obtain for your horse as much care and as many comforts as he would experience in your own stables. If he be distressed, you may give him gruel; but no hack in good condition ever ought to be too severely pushed. It is only in the chase that this may happen occasionally; for the man who has time enough, as he may have by starting early, to go a certain distance with a horse well prepared for work—and no other should be used—must ride him very unfairly or very injudiciously if he require nursing instead of taking solid food."

In travelling the road, the vices and defects usually met with in saddle-horses are set forth in a preceding chapter (*Vices on the Road*). The *Defect of Stumbling* here finds its place. Mr. Bingley says on this subject:

"There is a mode of keeping our present roads in order

which is called 'darning.' It is effected by filling up a part somewhat lower than the general surface by broken pieces of granite, left to be crushed by the wheels of carriages, while the old, smooth road forms the general surface. The substratum of ground is not picked up, but is left hard, and four or five-cornered pieces of stone are left to be trodden on by the first or any horse that is obliged to go over them. The hardness of the under surface prevents their sinking with any weight on them, so a horse might as well tread on an iron peg fixed and left an inch or two high.

Let the rider, above all abominations as to ground, avoid a piece that has been thus 'darned'; for unless the sole of his horse's foot is as hard as the granite itself, the chances are, if he is not exceedingly on the alert and quick on his legs, that he comes on his nose, though on all other occasions as safe as a cat on a carpet. Not to wince from the pain the pressure on such a surface occasions is impossible; and if after doing so he keeps on his legs, all the credit he gets is being accused of having made a stumble, and perhaps a blow is the reward he gets for his activity in not, as a dull horse would have done, coming down headlong.

One of these 'darned' roads led, while I and a friend were out together, to a conversation on stumbling. On his horse making a false step, he gave him a stroke with his stick, and in a somewhat stentorian voice bade him 'hold up.' Whether my friend did this to show how resolute a horseman he had become, and his proficiency in stable terms, or thought that what he did would prevent his horse wincing when hurt, I know not; but it set him curvetting about in a way that would ensure his not being struck while he continued doing so; for my friend had occasion for all the hands he had for his bridle, and would have wanted a third if he wished to strike his horse.

Let the rider call to his reflection the causes of stumbling, says our author; he will then judge how far correction will remedy these. The usual causes are infirmity, peculiar formation, gait, indolence, and bad roads.

If he blunders from weakness or infirmity, a blow with the stick will not render the infirmity less. Keeping such a horse a little on his mettle will in many cases make him go safely to a certain extent; that is, it may, by preventing him dwelling long on either weak limb, also prevent it

giving way under the weight imposed on it; but hitting him when it has so given way as to cause a stumble cannot recall the stumble, but will very probably increase its effects.

If blundering arises from formation, no stick or spurs, apply them when you will, can alter that; and if from formation the horse cannot put his foot fairly on the ground, blunder he will and must; he cannot help it, so how can correction do any good in this case?

When arising from gait, correction with the whip or stick, when he stumbles, will not alter gait; but the hands with the whip and spurs as aids, may, if properly used, when he is not stumbling. Correcting the cause may do a great deal of good; but correcting, or rather punishing, the animal will not prevent or remedy the effect, which is stumbling.

Should he blunder from sheer indolence, correct the indolence as much as you please. If he will not be roused to energy, or, at all events, to quick motions by a switch, lay a tough ash plant about him; and if a touch of the spurs will not stimulate, give him a pair of good new rowels, and they will, by making so lazy a brute move more quickly, make him move more safely. We often find unsafe horses tolerably the reverse in their fast paces. Why is this? If we make a lazy horse trot three miles in twelve or fifteen minutes, he must move his legs quickly; this causes such horses going more safely in fast paces. If they would also step quickly in their slower paces, they would be safe in them. If a horse will walk cheerfully four miles and a half an hour, we generally find him as safe in a walk as a trot. The lazy horse has not energy enough to do this, nor are pains enough taken with him in his walk to make him do it; he must, when the whip and spurs force him into a fast trot. But no longer pipe, no longer dance; and as these cease so soon as he is allowed to walk, all his energy ceases also, and then he blunders again—and so he will as long as he is a horse.

There is yet another and very frequent cause for a horse tripping, blundering, or even falling—which is fatigue. In this case, striking him for doing what he cannot avoid is absolute cruelty and injustice, and done, as on all occasions, when he has tripped or blundered, is perfectly useless. No doubt the whip and spur, plied when he is not blunder-

ing, force the brute to increased action, and from that probably prevent his tripping as often as he might otherwise do; but to ride a willing, good horse till he requires this is so unjustifiable, that if I knew anything that would save such a rider a severe fall, I should glory in concealing it from him.

Tripping is a habit or fault common to multitudes of horses who are nevertheless perfectly safe. It usually arises from striking the toe against some surface; and a horse well on his haunches may do this *ad infinitum* without once being in danger of coming down. He would, naturally enough, alarm a person not used to ride him, for he would not know how far it might go; and even supposing a stranger to be riding such a horse in company with his master, though the latter might say, 'Don't pull him about—he is quite safe,' a man must be an experienced horseman, a good judge of what is or is not unsafe, and must also have a good opinion of the owner's judgment, to feel confidence on such a horse.

The rider may be quite sure that a horse of any spirit has as great an objection to falling as his rider has to his doing so; and the quick way in which such horses catch themselves up, if they make a mistake or unavoidable stumble, shows that such is the case. Now a trip merely occasions a horse to bring the foot that he has not tripped with sooner to the ground than he would have done had he carried the tripping foot forward to its regular length of step, be that more or less; something has stopped it in its progress, so instead of putting it forward, say fourteen inches, it is stopped at ten. This produces a somewhat unpleasant sensation to the rider, and an unequal step in the horse. This is a trip. If the horse is light and airy, he catches himself up; and as the more spirited he is, the more quickly and energetically will he do so, this very often leads an inexperienced horseman into the belief that he has narrowly escaped a most serious fall, when, in fact, it is only the spirit and activity of the horse that have induced him to make a considerable effort to remedy a very inconsiderable mistake, and one that in a more indolent horse, not noticing himself, would scarcely have been noticed by the rider. It will therefore be clear that, with a horse who has spirit enough to do of his own accord all that we could make or wish him to do if he does make a trip, any check on his

mouth would only confuse him, and could do no possible good; and if a horse happens to be at all 'a loose-necked one'—that is, one inclined to throw up his head on any strong pull on his mouth—we can do no good by checking such a horse, however bad a blunder he may make; but by doing so the rider would run great risk of bringing his horse's head in contact with his own.

I have generally found (singular as the assertion may at first appear to the reader) that very light-hearted, cheerful horses are more apt to make trifling mistakes, or trips, than more steady and methodical steppers; and the reason they may do so I take to be this—such horses are constantly looking about them; the least thing attracts their attention; and if that is fixed on different objects it is called from looking at the road, or where they are going; so they come in contact with inequalities, stones, and so forth, on the ground that the more staid, sober, and plodding goer carefully avoids."

The *Speedy Cut*, or the horse cutting himself from faulty action, is a serious defect. It is sometimes occasioned by overreaching the forelegs with the hinder toes, at others by turning the toes much out, cutting the inside of the opposite foot. Indolence, or a long, loose leg, produces this slovenly style of going, for which one remedy is to "get hold of his head," and make him trot briskly. We have seen this alter a horse's style of "handling his legs." It is sometimes difficult to decide with what part of the hoof or shoe the horse strikes the standing leg. A little careful observation will decide this.

Take the horse into some clean place—a hard dry road is the best; smear his hoof and shoe with a little white paint if the legs are black, with black paint if of any other colour. Cause him to be walked for a quarter of an hour; if he has struck, or even brushed either leg, the paint will be disturbed or wiped off from the precise part he hits with, and it will further show (in cases where he does not actually cut) the spot he hits, for on it the paint rubbed off the other leg will be visible. If during his walk the paint remains undisturbed, we may fairly infer it is not in that pace he hits his legs. Trot him; if he hits, you will see where the offending leg has struck, and where the struck one is hit. As in his walk, if the paint remains as it was put on, we must infer it is in his canter or gallop

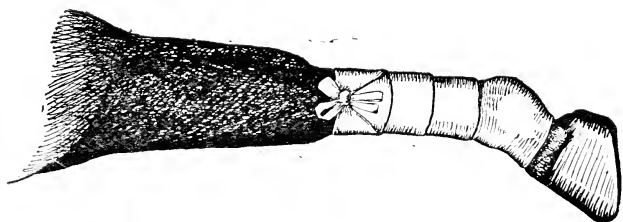


FIG. 3

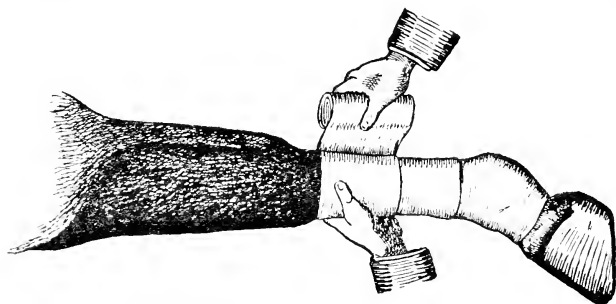


FIG. 2

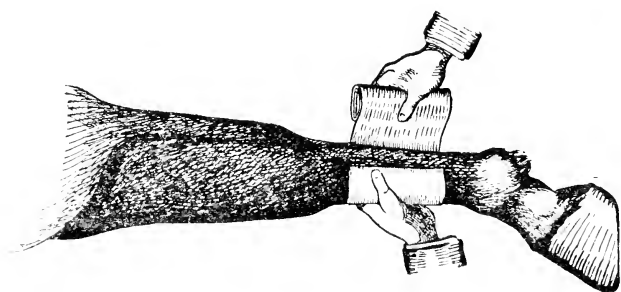


FIG. 1

HOW TO BANDAGE THE LEGS.

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that the collision takes place. Having ascertained this most indispensable fact, we must then endeavour to prevent it, or, at least, palliate its effects.

People attach a far greater degree of inevitable danger and likelihood to horses coming down from cutting than—objectionable as the failing is—is absolutely the case. When the horse cuts or hits his leg, the pain occasioned by it causes him to wince, falter, and, indeed, I have seen a horse go a step or two after the occurrence, absolutely on three legs; but the fear of falling is greater than the pain of the hit leg, and he mostly saves himself. This is when he cuts or hits his ankle only. But if he hits just below the inside of the knee, which he never does but in a quick pace, he will then sometimes come down as if shot. This is appropriately called “speedy cutting”—the worst and most dangerous failing among all cutting, and one that is incurable, for this reason: it proceeds from a particular direction of the offending leg when in action, which not once in a hundred cases can be altered. We have no resource but defending the part hit by a proper boot or legging for this express purpose, a most inconvenient and unsightly thing at best, and, moreover, all but certain to gall and chafe the leg to which it is applied. Put the horse to a description of work where the pace in which he is apt to cut is not required.

Cutting or hitting the hind legs is, of course, far less objectionable than the same failing as regards the fore ones, not alone from its not subjecting the rider to danger, but the hind parts being lighter than the fore ones, we can take greater liberties with the hind legs as regards shoeing, and can throw them by such means more out of their natural position than we can the fore ones, and still interfere but little with the horse's power, action, or safety.

Horses are decidedly more apt to cut behind than before when in harness, and *vice versâ* when under the saddle. Much may be done towards preventing cutting by judicious shoeing; but this is not always to be trusted to. We only prevent by this the sharp edge of the shoe coming in contact with the standing leg, which would otherwise be wounded by it. There are many horses that would still hit if they had no shoes on them. It is the position in which the standing leg is placed by nature, and the direction of the moving or passing leg, that produces the failing. We can-

not alter nature; we can only bring art to remedy, to a certain degree, the natural defect.

Smiths are very apt, on being told or seeing that a horse cuts, to shoe him, as it is termed, "thick-heeled" on the inside, or to make his shoe altogether thicker on the inside than the out. They tell you that by this mode they turn or twist the ankle farther out of the way of the passing leg. They do; but they are not aware that if they do remove the ankle of the standing leg—say an inch farther out of the way—they bring by this method the passing leg three inches nearer the standing one.

"Harry Hieover" tells us of the success of an exactly opposite practice. He had a horse with this failing shod with a shoe thick on the outside. This did not remove the standing leg farther out of the way, but gave the passing one a direction far away from the one it formerly struck. It succeeded, and three or four other horses that cut in the same way were shod, with similar beneficial results.

We doubt if this plan would have any efficiency in the case of cutting by the hinder foot.

To the above gossiping but sound remarks of "Harry Hieover" we may add that the remedy of making a shoe with a narrower web on the inside, so as to leave a portion of the sole overhanging, is merely temporary in its effects. When the cutting or "interference" is from a defect of structure, the cure is only apparent. When on wet roads, you will quickly find that the portion unprotected by the iron will be worn and spread, and that rawness will ensue.

If you suspect inflammation in the foot, a simple plan may detect its presence. Wet the hoofs thoroughly, and watch whether the suspected foot does not dry more rapidly than the others. If there is inflammation, the affected foot will always dry first, and resume its unnatural warmth in a few minutes; the sound foot will dry cool. Should a disposition to rest the heated foot be observed, let it be carefully looked to. Never neglect stopping the feet every night. Clay and cow-dung is the readiest and most generally available substance.

We have already spoken of the expediency of giving gruel or bran mash to the tired horse; but occasionally, if the animal has been too severely taxed, cordials may be administered with advantage. Should your animal exhibit signs of being "done up" by exertion, do not hesitate to

give him half a bottle of good sherry; but this certainly would be wrong after any of the inflammatory symptoms of a chill have shown themselves. In that case prompt and free bleeding only can save the horse, and any cordial is decidedly injurious. The state of the pulse will usually indicate the existence of inflammatory action. It is necessary to inform the inexperienced that the only place where the pulse can be felt to advantage, so as to discriminate the sensation with accuracy, is under the jaw, where the sub-maxillary artery can be pressed against the bone. As the position of this artery is only known with certainty by the anatomist, it may guide the touch to direct the finger along the inside jaw, a little above the edge where it begins to decline downwards, gently pressing it against the jaw till the pulsation is felt. By doing this two or three times, any man will soon discover the exact spot where he should feel for the pulsation. In a healthy horse, the intervals should be about forty or fifty per minute. When it exceeds this by ten or twelve pulsations, the horse is not well; but the circulation may be momentarily accelerated even to that extent by sudden alarm; it is, therefore, expedient to approach the horse quietly, and to caress him for a minute or two first if he shrinks from approach. If the pulse exceeds sixty, prompt and skilled attention is required.

It often happens, however, that no veterinary aid is at hand, or only a groom who knows no more of his business than the horse itself. In such cases, all that can be done is to observe some obvious principles, which, at all events, can do but little harm. If the horse betrays great pain, and especially a difficulty of breathing, copious bleeding should be resorted to without delay, and it is far better to bleed once very freely than several times at intervals. Inflammatory action is often arrested by bleeding largely in the first instance; and when once arrested, all the distressing symptoms are speedily relieved; but so rapid is the secretion of the blood, especially in inflammatory disease, that four or five times the quantity abstracted, if taken away in several successive operations, will produce little or no effect compared with the loss of four or five quarts at one time. It may safely be assumed that wherever acute pain is indicated, inflammation obtains; and as the symptoms of pain are very unequivocal in a horse, an easy guide is thus given as to the necessity of bleeding.

If febrile symptoms appear, the same step may be taken, but not to the same extent. The symptoms of fever are not characteristic of pain, though the breathing is often affected. In a febrile affection the horse is languid, his coat loses its even, glossy appearance, and becomes what the grooms call "staring"; the legs and feet are cold, and the appetite is gone; the bowels are usually confined, and the general look of the horse is what one would describe as miserable rather than restless and uneasy. In such cases we should recommend frequent, but not copious, bleeding, and the bowels should be opened by purgative medicine; two drachms of aloes is a sufficient dose, to be repeated every ten or twelve hours, and if they fail to operate, a clyster would probably prove of service; the stable should be cool, and the horse kept warm by extra clothing. His legs should be well rubbed, and bandaged with flannel rollers.

Whenever the severe symptoms, whether of inflammation or fever, are subdued, anxious attention should be given to the horse's diet. Gruel and bran mash will keep the bowels slightly relaxed, and should be continued till he shows signs of returning appetite; but some time should be suffered to elapse before he is indulged with his usual food.

It is no uncommon thing for the owner to abandon the case as hopeless when he sees his horse spontaneously lying down. This is a great mistake; a horse in great pain will lie down and roll himself about; but, unless to relieve himself, where the legs or feet are injured, a horse that is ill will continue standing as long as his strength will permit; it is considered a favourable sign if he lies down on the litter without being compelled by actual debility; and it follows, of course, that instead of relaxing exertion, all the remedies should be pursued more actively to save him.

In cases of recent local injury, fomentations, poultices, and local bleeding are generally serviceable; this is particularly the case in strains of the back sinews or accidents to the foot. It is very important in such cases to watch closely the operations of the country farrier. Fomentations, and even poultices, are troublesome, and therefore not continued, even if first adopted. To a recent wound in shoeing or treading on a nail, Friar's balsam may be usefully applied; but where the wound is severe, this or any stimulant will increase the inflammation to a mischievous extent. The

horn (if the wound is in the foot) should be pared away, and the place poulticed. Lameness occurring soon after shoeing should always excite a suspicion that the sensible sole has been pricked, and in such a case it is obviously impolitic to consult the smith by whom the horse was shod. In applying a poultice, it is a common practice to tie it tightly round the foot or leg with strings. This is injurious; a worsted stocking is a very convenient bag, and may easily be kept on by applying another stocking to the other foot, and passing a roller over the withers to connect the two. Any tight ligature round the leg is injudicious, if it can be avoided.

Where any place is galled or swelled by the saddle or the harness, fomentation is the best of all remedies; should any abscess be formed, it should be opened and kept open by a seton, till the matter is entirely discharged. A kick or a bruise should receive the same treatment, if the contusion is considerable; and especially in the case of broken knees. In this case a horse is often more blemished by the treatment than by the accident itself. If the joint is much injured, a cure is generally hopeless; it would be more humane, as well as more prudent, to destroy the animal at once. But if the wound does not affect the joint (and on this point the farrier alone can give certain information), it should be carefully and tenderly washed out with a sponge and warm water, and then poulticed for two or three days; after this the inflammation will probably have subsided, and ointment should be applied; not gunpowder and grease—every country blockhead recommends this, to promote the growth of the hair. It has no such effect; on the contrary, it often irritates and retards the cure of the wound. Lard alone, or with a little mixture of alum, will be much better; care, however, should be taken to apply the ointment in the direction of the hair, otherwise, when the cure is effected, the hair will grow in an uneven or reverted form, and will make the blemish more apparent.

In all cases of strains, local bleeding and rest are indispensable. Where the back sinews are affected, rest can only be secured by a high-heeled shoe: after all inflammation has disappeared, absolute rest, even for a considerable time, is requisite to a cure. If the part is enlarged, stimulating lotions, such as hartshorn and oil in equal proportions, and even blistering, may be beneficially applied. This, of course, is incompatible with continuing work. Indeed, some strains,

accompanied as they often are by a fracture of some ligament, seldom admit of a permanent cure. In the early stages, an emollient poultice of linseed and bran should be applied to strains of the leg, whatever part of it may be injured, and the horse's diet should be changed. If by this treatment the horse apparently recovers the use of the limb without pain, the high-heeled shoe may be removed, but he should not be put to work for some weeks; he should be turned into a loose box, or straw yard—and indeed this should be done in every serious case of local injury or internal disease.

Let it be borne in mind that these general hints are not intended to supersede the calling in of a qualified veterinary surgeon, but in order that, in extreme cases, an intelligent promptitude in the horseman or rider may take the place of helpless inactivity.

We will now say a few words respecting the treatment of *Broken Knees*, an accident which may occur at almost any moment, and which requires immediate attention. The first thing to be done is carefully to wash away with a soft sponge and warm water every particle of sand or gravel which may have insinuated itself into the wound, of which you will then be better enabled to ascertain the depth. It occasionally will happen, in a very severe fall, that the capsule of the joint is lacerated, and in this case an effusion of a limpid and somewhat glutinous liquid, called "synovia" or "joint-oil," will take place. This may not be very perceptible at first, particularly if the opening into the joint be small; but so soon as your attention is directed to it, you should lose no time in sending for the best veterinary surgeon within reach, as you will scarcely be able to manage the case by yourself. Where the laceration of the capsule is extensive, the probability is that the subsequent inflammation will ultimately produce abscess, ulceration of the cartilages of the joint, and, if the horse live long enough, destruction of the bones which compose it. But should the opening into the joint be small, the object you must keep in view is to preserve it accurately closed until nature shall have had sufficient time to effect its union by granulations. For this purpose a heated iron, of proper dimensions, is usually employed, and the edges of the opening being cauterised, the eschar thus formed and the subsequent swelling contribute to close the opening for some days.

When the capsule of the joint is uninjured, and the flap of skin which covered the wounded part still remains, some veterinary surgeons have recommended that it be cut off, and the wound dressed with Friar's balsam, which is a strong stimulant. This treatment can scarcely be vindicated by sound judgment. We should advise to lay the flap down as neatly as possible, and retain it in its proper position by a single point of suture at its least supported part, where the cut portion was large and but loosely attached, or by strips of adhesive plaster, together with a compress and bandage. These latter keep constantly wetted with goulard lotion.

Where the skin is entirely removed, the best application, after fomentations with hot water, is a soft and warm linseed-meal poultice, which should be removed every four hours until the inflammation subsides. You may also, in every case, give a gentle dose of physic, and no other food for the first few days than bran mashes and hay.

When the inflammation has been subdued, and granulations appear, apply strips of adhesive plaster, neatly one over the other, so as to make some pressure on the wound, and bandage the leg very carefully with a linen bandage from above the knee to the coronet. Several stimulating applications may be requisite during different stages of the cure, among which Friar's balsam and nitrate of silver lotions, varying in strength according to the state of the parts, are perhaps as good as any.

Whether the wound has penetrated to the joint or not, and whether the skin be hanging to the wound or cut off, in every instance of broken knees apply a splint of wood, of the whole length of the leg, to the back of the limb, and confine it by a bandage. This is a precaution unattended to by many veterinary surgeons; but as it prevents the injured part from being bent or moved, should never be omitted; for the quieter the state of the wounded limb, the less will be the consequent inflammation, and the speedier the cure. Where the injury is great, the splint should be kept on for at least six-and-thirty hours without removal.

Cold lotions and warm poultices have been mentioned as applicable to different degrees of broken knees. Poultices rather tend to hasten the process of suppuration, without a slight quantity of which granulations will not be formed. They are therefore to be used where there is no flap of skin

left. But if you wish to effect immediate union of the cut parts, which should always be attempted when practicable, suppuration is not to be promoted, and therefore cold lotions are preferable. It requires great care and nicety so to apply strips of plaster and bandages as to prevent the swelling so often consequent on a bad broken knee, and which blisters and stimulants nine times out of ten fail to reduce.

Farriers will tell you that the common adhesive plaster will not do for a horse, and would fain induce you to use slips of leather covered with pitch ; but where your plaster perfectly encircles the wounded part, as the knee-joint, and is cut sufficiently long, one end overlaps the other, and consequently it adheres to itself. Where this is not the case the hair will prevent it from sticking.

Inflammation of the Eye sometimes makes its appearance suddenly, either from irritating substances, as hay, seeds, etc., making their way into it, or from blows with a brush while cleaning the head, or a rap with a stick from a brutal groom, who is in the habit of striking a horse over the head while riding him, and perhaps accidentally hits the eye by the sudden shifting of the horse's head when he expects a blow there. We have seen a very severe injury of the eye, where it presented the appearance of a mass of blood, from this very cause.

In this case you must bleed from the vein running just below the eye, and which is usually very easily distinguished, and give physic and bran mash. Cold lotions of goulard water are to be constantly applied to the eye, and the stable to be darkened while the inflammation is excessive. When this is reduced, and the membrane of the eye still remains clouded, you may inject night and morning with a syringe a weak solution of nitrate of silver, beginning with four grains to an ounce of distilled water, and gradually increasing its strength as the eye appears to improve under its application. A little speck will frequently remain on the membrane, which cannot be removed. Indeed, it is occasioned by the abrasion at the moment of injury of this most delicate part.

Greasy Heels you will have few opportunities of treating if you follow the advice given under the head of *Stable Management*. They are most frequently occasioned by washing the legs with cold water while they are heated

from exercise, and suffering them afterwards to dry ; the consequent reaction after the application of cold being excessive, and running into inflammation. Nature then seeks to relieve the gorged vessels by a discharge of ichorous matter from the inflamed part. Bringing a horse into a hot stable in the winter, when his legs are chilled with standing some time, perhaps in the snow, will produce a similar effect. These ills are easily to be avoided with a little careful supervision : by accustoming your groom to pay particular attention to rubbing the heels dry at all times, and keeping them perfectly clean.

When the disease has appeared, all causes inducing it must be avoided ; and of these we may mention draughts of air blowing upon a horse from behind ; and if the pain and heat of the part be great, warm and soft poultices must be applied in the first instance.

As soon as stimulating remedies are applicable, you can use nothing better or cleaner than a solution of nitrate of silver in distilled water, beginning with eight or ten grains to the ounce. Sometimes, however, the diseased parts will require a change of stimulants, and you may then apply a solution of blue-stone in a strong decoction of oak bark. A stick of nitrate of silver or lunar caustic may be lightly passed over the cracked part occasionally with great advantage. But there is one circumstance which, although in every case neglected, you must not overlook. The motion of the diseased part must, as much as possible, be controlled. Every time the horse bends the fetlock-joint, he disturbs the process of nature in effecting a cure ; and as it is necessary to prevent the crack in the heel from being disturbed, you will find that any moderately soft substance, as bees'-wax or putty, placed over and close to the diseased part, will, by taking its form and accurately making pressure upon each portion of it, materially conduce to the cure. It must be applied directly after the lotions recommended, and must not only be kept on by a neatly-applied bandage, but the hollow in the back part of the fetlock-joint must also be previously filled up by a pad of tow, or some other soft substance, in order that the joint may thereby be rendered less capable of motion.

The heels being the farthest removed from the heart, the circulation of the blood in them is less active and vigorous than elsewhere, and consequently their restoration to a

healthy state is achieved with more than usual difficulty. Some horses that have cracked heels are in too high condition, while others in a debilitated state are equally or perhaps more prone to the same disease. These different states of body, of course, require opposite constitutional treatment, the first demanding low diet, with purgatives and diuretics, the second, generous food with tonics.

Of all the preventives of grease, there is none—setting aside the avoidance of those causes already mentioned as conducing to the disease—so effective in its operation as bandaging the legs regularly with flannel rollers. We advocate their employment at most times in the stable, as they materially tend to fine the legs when properly applied, and also, when not put on too tightly, evidently keep up the circulation in the extremities, a point of much consequence.

Those who are not shown the proper method of applying a bandage generally do more harm than good with them. We do not in the least exaggerate when we say that we never yet knew a groom who could put on a bandage as it should be. They fail about the pasterns and fetlocks, and leave the bandage there loose and bagging, so that, when pressure is requisite, the circulation between the pastern-joint and the foot is impeded, and the latter will be found cold, and the part between the coronet and fetlock perhaps somewhat swollen.

Bandages, to be neatly applied, should not be so wide as grooms generally make them. You will hardly be able to put them on properly if of more than four inches in width. Begin by applying your roller just under the knee, pass it round in rather a slanting direction, keeping your finger on the extremity until you find it has taken firm hold of the limb; then let each turn of the bandage cover one half of that above it, taking care so to direct it that its under edge does not bag, but lies closely on the leg. When you come to the hollow behind the pastern, the bandage must be half folded on itself, so that what was its upper border shall be undermost, and this must be repeated whenever it cannot be otherwise made to lie smoothly and closely to the leg.

By bandaging from above downwards, you in a great measure avoid leaving any marks of the roller on the hair. In the veterinary portion of the present work will be found engravings of the various kinds of bandagings, and their

applications by the professional man. An eye-acquaintance with these will enable the proprietor of an animal to judge of the manual competence of farriers or grooms who may pretend, in an emergency, to understand the best modes of applying them.

CHAPTER XII

THE PACES OF THE HORSE—THE WALK—THE TROT—THE RUNNING TROT—THE CANTER—THE GALLOP—LEAPING

THE mode of progression of the horse comprises five distinct modes of lifting the limbs: 1, The walk; 2, the trot, of which there are two varieties; 3, the canter; 4, the gallop; 5, leaping, which is akin to galloping, and exhibits several modifications, according to the obstacle to be surmounted.

The Walk.—The slow walk is the simplest of the paces of the horse; but, if accelerated, breaks either into the amble or an approach to the trot, whereby the succession of the movement of the limbs is varied. In the true walk, one foot only is lifted at a time, three remaining on the ground; increase the pace, and the two legs at opposite sides—that is, the near fore leg and off hind leg, or *vice versa*—are raised together. This, also, is the true trot, although the muscular movement in the walk is very different in degree and character.

To walk well is a valuable property in any horse, but particularly so in the hackney. Such an one can compass his five miles in an hour with ease. Where a horse walks well, the necessary harmony and accordance in the form of the limbs are such as to make it almost a rule that he is good in his other paces. The race-horse can stretch along in his walk, so as to get over much ground in a little time; but it is not often that he does it either pleasantly or safely; his stride is too great, and the elevation of his limbs is naturally curtailed by his training. It is a very great acquisition also to the hunter to walk well. The walk as a pace should be performed harmoniously, whether it is quick or slow, each foot being dropped flat on the

ground, and not, as is too often the case, the toe being placed first and then the heel. The breaking of the horse will have much influence on his method of walking; the angles of his limbs will have much more; and not a little will depend on the hand of the rider. One horseman, by seat and hand, will force the horse to carry his head in the right place, and to elevate and extend his limbs the one in unison with the other; another rider, by his bad seat and worse hand, will bring the horse he rides to step short and irregular, and so to mix the trot with his walk as to do little more than shuffle over the ground. The maximum of speed in the true walk of the horse is under six miles per hour; there are but few can do thus much, but it has been done. Five miles per hour is the common pace of a fast walker. Charles Westhall, the pedestrian, who can, or could, clear seven miles' walking in fifty-eight minutes, would dead beat the best walking horse, and break him into a trot before fifty yards were covered.

Of all the paces, the walk is the easiest to the rider, provided he sits in the middle of his horse's back, as it consists of an alternate elevation and depression of the animal's fore and hinder quarters. The motion may be compared to the vibration of the beam of a pair of scales. It is difficult to confine young and high-mettled horses to a walk; good temper and a firm light hand are requisite to accomplish this. When such horses change to a trot, stop them for a minute or two; then walk them on again. If the horse carry his head well, ride him with a moderately loose rein, raising the hand when he tries to break into a trot.

The Trot.—The trot is also a mixed pace; it combines the true trot, and the running, pacing, or American trot. In what may be called the true trot the legs are lifted diagonally, and brought down simultaneously. This motion is repeated more or less rapidly, the off hind foot and near fore foot being in the air together, and *vice versâ*. Accelerate the trot to ten or twelve miles the hour, and a spring will have been imparted to the pace, by which the off fore and near hind leg, having struck the ground, the near fore and off hind leg not only are ready to elevate themselves, but have actually left the ground, and all four feet are in the air at the same time, as in the racing gallop, or flying leap. In a sprint race, you may easily see that a man at

speed is completely off the ground ; how this self-evident fact could have been so much discussed is proof of how much more ready to theorise people are than to observe for themselves. In the man's running, a spring is made from one leg ; in a horse's extended trot, from two diagonally taken. The result is the same ; a propulsion of the body forward, and a necessity of bringing up a leg in one instance, or two in the other, to save the fall of the body forward. Thus a series of impulses is kept up, and, by a series of driving bounds, the weight of the body is rapidly driven forward. It is to be observed that the quadruped is here much safer, from his diagonal line of gravity being distributed over the space from fore to hind foot, while in man the centre of gravity lies so forward as to place him at the risk of a fall from the slightest mistake or mischance.

Fast trotting, except in harness—for which work, by the way, it is the only pace that almost any horse can try either safely or pleasantly—is not so much practised by sportsmen or those who ride for mere pleasure ; by this we should be understood to mean the maximum sixteen or seventeen-mile-an-hour proceeding. The race-horse may take two or three fine delicate steps in this pace just previously to his jockey sending him up the preparatory gallop ; and hunters will thus jig-jog along to or through a cover ; but with either of them it is never thought of when business begins. The man of fashion, so proud of and particular in the choice of his thoroughbred hacks, is content with a good walker and easy canterer, adopts high ports and long cheeks to his bridle, gets (if clever and lucky) a good mouth with a light hand, pulls his horse well back on the haunches, and sails along with an idea that the fast trot is a vulgarity confined to East End fanciers and butchers' boys, fast corn-dealers, jobbers, sporting publicans, with a turn for matches and bets, and the like. Yet this is the true, best, and most serviceable pace of the saddle horse.

With respect to trotting in saddle, this pace is but to attain a secure seat, combined with confidence and firmness. The rider has more control over the motions of his body in this pace than any other ; in this the body is well brought down into the saddle by its own weight, and finds its true equilibrium. When the rider wishes to make his horse trot, let him ease his reins and press the calves of his legs gently ;

when his horse is at a trot, let him feel both his reins, raise his horse's forehand, and keep his haunches well under him.

We may note two distinct habits of riding the trotting horse; one, that of *rising in the stirrups*—the civilian mode; two, the *military* style. The first saves an immense amount of fatigue to the horse, and unpleasantness to his rider. The second is a sacrifice to uniform appearance in a body of horsemen, as the effect of a number of men bobbing up and down synchronously with each horse's step would be something almost ludicrous; for it must be remembered that the man must here take his time from the horse, not the horse from the man. Accordingly, your dragoon bumps away upon his sheepskin as he best can.

The civilian style is thus carried out. At the very moment when the near fore and off hind foot (or *vice versa*, according to the foot the horse starts with) have struck the ground in their effort to throw the horse forward in his stride, the body of the rider is propelled into the air, by hard and high trotters, to such an extent as to fearfully discompose an entire novice. Having reached the utmost height consequent upon this unpleasant propulsion, down comes the seat, reaching the saddle just in time to catch the next impact, and so on as long as the trot lasts. Now it is by performing each of these motions so as to rise and fall the instant before you are bumped that you ease yourself and assist the animal. In this way the horse absolutely carries no weight at all during half his time, and the action and reaction are of such a nature that the trot is accelerated rather than retarded by the weight.

No horse can fairly trot above twelve or thirteen miles an hour without this rising, though he may run or pace in the American style; so that it is not only to save the rider, but also to ease the horse, that this practice has been introduced, and has held its ground in spite of the military sanction. It is here, as with the seat, utility is sacrificed to appearances, and whenever the long and weak seat of the barrack-yard supplants the firm seat of the civilian, the rising in the trot may be abandoned, but certainly not till then. The military length is not now what it was thirty years ago, and perhaps some time or other they may adopt the rise.

In the trot, the foot should bear strongly on the stirrup,

with the heel well down, and the ball of the foot pressing on the foot-piece of the stirrup, so that the elasticity of the ankle takes off the jar, and prevents the double rise which in some rough horses is very apt to be produced. The knees should always be maintained exactly in the same place, without that shifting motion which is so common with bad riders, and the legs should be held perpendicularly from the knees downwards, the chest well forward, the waist in, and the loins nearly upright, but slightly forward, and as easily as can be effected without effort on the part of the rider, rather restraining than adding to the throw of the horse.

The military style, without rising, is effected by leaving the body as much as possible to find its own level. The knees should not cling to the saddle, the foot should not press forcibly upon the stirrup, and the hands should not bear upon the bridle. By attending to these negative directions, the rider has only to lean very slightly back from the perpendicular, and preserve his balance, when practice will do the rest.

The Canter.—The canter, as we see it in the park hack and lady's horse, is an artificial pace. The exertion is less than the gallop, the pace slower, the spring less distant, and the feet come to ground in almost regular succession. In the gallop of speed the legs are simultaneous in their movement; in the canter, the reverse. In the slow gallop, too, there is a period when all the legs are in the air; in the canter this never occurs. He has always a point of contact with the ground. First, the horse puts his off hind leg a little in advance of the near leg; at the same time he lifts the forehand and then drops the near fore leg on the ground, and throws the off leg forward and beyond it, following the near leg instantly, by bringing the former to the earth.

In riding the canter, the rider should have a light and firm feeling of both reins to raise his horse's forehand; at the same time, with a pressure of both calves, to bring the animal's quarters well under him, having a double feeling of the inward rein, and a strong pressure of the outward leg, to cause him to strike off in unison.

At all times the horse should be taught to lead off with *either* fore leg; by doing so his legs will not be so much shaken, especially the off fore leg, which is the one he most

generally leads off on. This must be the case when he is continually throwing the greater part of his weight upon the leading fore leg, as it comes to the ground, which causes lameness of the foot, and strains the back sinews of the legs. Being thoroughly taught to change his legs, the horse is better able to perform long journeys with facility and comfort both to himself and his rider. Should the horse show a tendency to cross the canter, rouse his mouth with a slight reminder, and speak sharply to him; he will soon understand what is required, and behave accordingly.

The Gallop.—This is a natural pace common to every description of horse in a state of nature, from the diminutive sheltie of the North to the onager (wild ass) of the African deserts, the ponderous Flanders cart-horse, and the flying thoroughbred of Eastern lineage, though their other paces may differ entirely.

All these move by a succession of leaps in which the hind quarters are the propellers. There are three distinct varieties in the gallop: the hand or slow gallop; the three-quarter gallop; and the full gallop—the last capable of a yet further extension in the racing “finish.” These are all modifications of the same mode of progression. We do not hold with those who class the canter as a gallop; for in the canter one foot is always on the ground, not so in the succession of leaps called galloping.

The Hand Gallop, with the right shoulder forward, is thus described by Blaine, than whom we can find no cleverer, better, or more practical writer on this topic: “At the instant the horse elevates his fore quarters by means of the muscles of the loins, he throws his fore legs also forward, through the agency of the muscles distributed to the shoulders and arms; but it appears that he does not elevate his fore limbs equally; the right is raised a little more, and it is likewise carried a little further forward than the left, which makes the action a pace, not a leap. During this elevation, and in some instances preparatory to it, the right or off hind foot moves slightly forward, but only sufficient to gain a true centre, and to correspond with the increased forwardness of the right shoulder: the near hind leg, it must be remembered, yet remains fixed.

The fore extremities now reach the ground, the near fore a little before its fellow, the off fore doubling over it, and placing itself a little beyond it; and the slower the gallop

the more considerable will be the distance between the placing the fore legs. As soon as the near fore leg has met the ground, and before the off fore has yet taken its full bearing, the hinder legs are moved in the following manner—the near hind elevates itself, and, as it reaches the ground, the off hind passes it and becomes placed also. It is now that the horse begins to be *all in air* in this pace; for on the next spring that the hind quarters make, the fore quarters being already elevated from the last impulse, the animal is of necessity completely detached from the ground. The next period when he is likewise so is, when the fore quarters, meeting the ground, gain a new impulse by their rebound, the haunches are again thrown in to take their share in the support, and also to give their impelling power to the mass.”

In the *Three-quarter Gallop*, though it is merely an acceleration of the hand gallop, the horse, by describing a much less curve in each leap or bound, and lengthening his stride proportionately, changes much the stretch and increases the obliquity of his pasterns as the feet reach the ground; which fact is visible in faithful pictures of running horses by competent artists. The pace is the one generally seen in hunting scenes and steeple-chasing (not a “finish”), the racing gallop being most incompatible with the nature of the ground.

The *Full Gallop* is the most simple of all the paces. “Simple as it is,” says Blaine, “it cannot, however, in any instance, be commenced without the intervention of the slower gallop, in which one of the hinder legs is first advanced to establish a new centre; for it would require too great an effort to raise the fore parts at once from a state of rest by means of the loins, and to throw them forward at the first action, to a considerable distance, by means of the haunches and thighs. This fact is well known to jockeys and other sporting characters, and they often derive profit from the circumstance by wagering with the unwary that no horse shall be found to gallop one hundred yards while a man runs fifty, provided each start together; in which case, so much time is lost in acquiring the due momentum that the man has often won: make but the race for one hundred and fifty yards and the horse would beat; for, now the impetus being acquired, he arrives at sufficient momentum to overtake his antagonist. In the

extended gallop the fore parts, when raised, are forced forward by the alternate flexions and extensions of the angles of the hinder parts; and as both of the fore and both of the hind legs, in the racing gallop, become opposed to the ground in succession at the same moment—that is, as the two fore feet at once beat the ground together, and then the two hind, so it is evident that the gallop of full speed is nothing more than a repetition of leaps.”

The gallop is ridden in two ways; the one seated in the saddle, the feet in the stirrup as far as the ball of the great toe, in the usual manner of riding throw paces, or with the stirrup home to the waist and instep of the boot—the ordinary hunting seat. With this the body is slightly bent backwards, in an easy posture; the knees press firmly against the saddle flaps; the hands low, with a gentle draw on the mouth. The position of the hands, however, must be higher or lower, according to the horse's mode of carrying his head when galloping; that is, raised if he hangs downward, level if he does not bear on the bit, and absolutely low if he “sniffs the wind with upturned nostril.”

The second way is the jockey's rising in the stirrups and standing. The weight is then on the irons, steadied by a moderate pressure of the knees. The seat is more backward than when down in the saddle, the loins and body leaning forward; the heel not too low, and the knee slightly flexed to press the foot backward as well as downward. This seat is rarely used except in racing. It relieves the horse in bad ground, and over deep plough or fallow, and might be more frequently adopted with advantage. It, however, soon fatigues the muscles of the rider, if it saves those of the horse.

LEAPING.

Leaping is a mode of surmounting obstacles common to most hunting quadrupeds, and to the horse tribe, though the style of jumping varies greatly in different animals. The kangaroo, which has no pace but jumping, is the most abnormal, his jump being effected by the base of his muscular tail and squatting hams. The trained horse alters his style of leap considerably, according to the nature of the obstacle to be surmounted, and hence, “fencing,” as it is called in hunting countries, presents several well-known

varieties. The jump is effected by a sudden and vigorous extension of the hinder limbs after bringing them well under the animal by the action of the flexor tendons. The body is then, as it were, projected forwards in proportion to the force of the impulse. Hence the importance of the hunter possessing powerful loins, muscular thighs, wide and well-let-down hocks, and oblique shoulders for landing safely. Though weight-carrying hunters must be large framed, it does not follow that a large animal can leap a greater distance than smaller ones; the length or height of the leap being measured by the force in relation to the weight of the body projected thereby.

The varieties of leap proposed to be noticed are—1, the standing leap; 2, the flying leap; 3, the buck leap; 4, timber, wall, and water jumping.

The Standing Leap is only suitable for slight obstacles, such as a horse can easily surmount by rising at them with bent fore legs, and his head at liberty. In the standing leap the horse rises on his hind legs by bringing them well under him, his rise being more or less perpendicular according to the height of the obstacle. Some horses are remarkably clever at a standing leap, while others (often they have been spoiled by bad riders taking them too close up to the obstacle, and then not letting them *have their heads*) will scarcely rise unless allowed a run. The horse being thus in a rearing attitude, except that his fore legs are flexed to enable him to rise more easily, he springs, after a second or so of balancing, upward or forward, throwing out his fore legs and landing with a drawing action, and bringing the hinder feet well in under his quarters on landing, ready for another spring forward. It may be easily guessed that to keep your seat in a standing leap of good height requires some skill from the great change which the horse's position undergoes in regard to his rider. A judicious equilibrium and a good hold with the knees are quite as necessary in this style of leap, *slow* as it is voted by Meltonians, as in the more showy flying leap.

In many places where a stile or low gate, with a branch of a tree overhanging it, has to be crossed, a perfect hunter will gather himself together and tilt himself over with a safety which a flying leap is far from ensuring. Yet, as we have before said, the standing leap having been voted "slow" by modern "fast" men, we will pass to the next.

The Flying Leap.—This is of two classes: the rushing one, adopted from necessity in the jumping race known as the steeple-chase; the deliberate, or hunting one, in which the horse is ridden steadily, and the fence, hedge, bank, or rail taken by a true leaping stride. The flying leap is performed with all the limbs more or less extended, and the whole line of head, neck, and body nearly horizontal, more so in proportion to the width of the brook, dyke, or other space to be cleared. As in the flying leap, the hinder limbs are the main instruments of propulsion, but the fore legs certainly take a greater part in the operation than is generally supposed, the last stride before the take-off of the leap the fore feet will be found to be violently thrown against the ground, to assist in lifting and propelling the animal, almost synchronously with the grand effort of the hinder limbs. The horse, having carried himself over the object, lowers his head, throws his fore legs yet more horizontally, and lands so as to offer the least resistance and jar; while his hinder limbs, which had been gathered up towards the belly to clear the leap, are brought under him, as in other cases, to again gallop on.

The flying leap ought to be made thus: The horse must not be hurried, but taken up at a brisk pace, with a light and steady hand, keeping his head perfectly steady and straight to the bar or fence. This position is the same as in the standing leap; and the aids required are the same as for making a horse canter. If held too tight in the act of leaping, the horse is likely to overstrain himself, and fall. If hurried at a leap it may cause him to miss his distance, and spring too soon or too late; therefore his pace must be regulated, so that he may take his spring distant enough, and proportionate to its height, so that he may clear it. When nearing the leap the rider must sit perfectly square, erect, pliant, and easy in the act of leaping; on arriving at the opposite side of the leap, throw the body well back, and again have the horse well in hand.

The Buck Jump, or Double Leap, is most remarkable in Irish horses, and among such of our own as are accustomed to banks and wall enclosures rather than water, hurdles, wattles, or quickset hedges. In the buck leap a second impetus is obtained by the horse striking the top of the wall or fence with his hind feet.

We need hardly say that the buck leap is not made at

the top of speed. The horse must not be at extended stride. The canter, trot, or short hand gallop are the most common preface, but we have seen it made under sudden alarm from a standing position. The buck leap is made from the ground by the simultaneous action of all four legs at once; but the superior strength and more favourable angle of the hinder ones throw the horse forward as well as up. When the wall or bank is topped, the horse, striking with his hinder feet, the fore legs doubled, comes down by gathering his hind legs up and throwing out the front in such a way as to land them all together—a most dangerous and unpleasant concussion follows. Blaine says of a fatigued horse, under these circumstances:

“The horse in such case not being able to bear the jar of a secondary effort of the joints to relieve himself, the attempt often brings him down, and thus it is that buck leapers are seldom safe ones. We would caution the nervous rider against the dangerous custom, which some have at every downward leap, of grasping the cantle of the saddle with the whip hand; for it not only displaces the body and consequently unsteadies the seat, but it has likewise dislocated the shoulder. We have seen others elevate the whip hand at every flying leap; and the action appears to have become so natural to them as not at all to discompose their seat. In Ireland this is very common, and among the regular Pats it is accompanied with a vociferous ‘hough!’ the rise of the hand and voice being synchronous; neither is it improbable that, from custom, both the action and sound are inspiriting to the rider—perhaps to the horse also.”

In leaping, much depends on the manner of bringing the horse up to the leap. He should be taken up straight and steady to the take-off, with the reins held in each hand, the hands low, the *curb-rein* held loosely. The rider's body must be erect, pliant, and easy in its movements. As the animal rises, the body must be well thrown back, and so at landing. The sitting a leap well is entirely dependent on the due poise of the body. The weight then accompanies the horse's movements, and the rider and his steed “keep time.”

Timber Leaping is of various kinds—posts and rails; a stile, with occasionally a foot-bridge; park paling; double posts, and rails, and swing-gates are the most common

obstacles in this category. Sheep hurdles and thorn fences, with or without binders, are included in the timber-jump. As a preliminary caution, we may note that many of the falls which occur in timber leaping are attributable to the want of "catches" on the outer side of the shoes. These should be slight and only on the outer side, as we shall note when we come to speak of the shoeing of the hunter. When the horse has not these as a foothold he is apt to slip his hinder quarters too far under in the attempt to stop the impetus of his gallop, and thus baulk his spring. Horses jump, however, as well as gallop, in all sorts of forms; and the judicious horseman will know that it is better to accommodate himself to his horse's habit, and cultivate his talent, than to interfere with his style, which is like an attempt to force a man to alter his settled opinions.

When you know your horse to be a safe fencer, be his fashion of performing his leaps what it may, do not try to force him to alter it; and whatever you do, by no means hurry such a horse, however prudent it may be to do so with others. Some horses, although sufficiently eager to get over, will always pull up at a timber leap, particularly if it costs an extra exertion. In such a case, if you know your horse will clear his leap fairly, let him take it his own way; forcing such a horse will probably be very unsafe. Never, however, attempt such a leap merely to show off either yourself or your horse during the run; for several others of a similar kind may be inevitable, and every such leap takes so much out of your horse that if he receives much shock on landing he will, perhaps, refuse a repetition. Never follow another rider when he is taking a timber leap, for should he fall you may maim or kill him, or at any rate lose your own credit. Do not force your horse at timber when he is distressed; for should he then fall it may be with great force, and he will hardly rise, to say nothing of your own probable injury. Once more would we caution the aspirant in field riding against taking such leaps at the gallop: *au contraire*, it is good riding to pull up at some leaps, as we have already said, and to take them either from a walk or, at most, from a canter.

The Stile—especially when it has a foot-bridge on one or both sides—is often a very ugly leap. If on the take-off side, most horses will sooner race it and clear the whole;

should this be impracticable or doubtful, an experienced "fencer" will, if the bridge is strong enough, take it at twice, and do it cleverly. A slip, however, on the bridge is apt to hang the horse's stifle in the top rail, and keep him till the timber gives way; or, by getting a leg between the bars, the unlucky animal and his rider "come to grief." A good way—don't fear the vulgar imputation of "slow"—is to turn the horse over *solus*, if you have a friend to catch him for you.

The Gate, like the posts and rails, should be steadily rode at; but remember that the foothold in these places is often very treacherous, owing to the ground being "poached" by the passage of neat-cattle and sheep at each side of the obstruction.

Never ride at a gate that by probability is unfastened; to do so when it is actually on the swing would be madness; for so many good leapers measure heights and distance so accurately as almost always to brush the former, and exactly span the latter, so a gate on the swing, or even unfastened, would in all probability fly open, and the horse, instead of topping it, would first find himself swinging on it, and next rolling rider and all headlong from off it. In such case it would be not unlikely also that the legs of the horse might, at the same time, become entangled in the gate rails; should this happen, first hold the head of the horse firmly down, and then let some one unhinge the gate, which is best done by putting the back against it. In these and other such like cases, wherein timber is concerned, we may remind the steady rider of the advantages which attended the heavy hunting whip of former times, with its hook and hammer mountings, as well as the sporting knife, with its cutting and sawing blades. Some good horsemen always ride briskly at a gate, which they say it is prudent to do; first, because your horse will at once distinguish between your purpose of merely going up to open it, and your intention of going over it; next they observe that by rushing at it, if the horse does not clear it, there is the greater chance of his breaking it by the impetus of the rush. The rider of a tired or blown horse, however, would do well to avoid timber when in his power, for such falls are usually serious ones to both parties; but when circumstances strongly urge the leap, let him push his horse at it with energy, lifting him by hand, and pressing him with the heel at the moment of the spring.

Park Paling is an ugly kind of timber to take, from the zigzag forks at the head of the pales occasionally locking the hinder foot, where it is strong enough not to fly before the blow. Double posts and rails, where too yawning for a clearance, must be taken "in and out," or "on and off"; at this, some Irish jumpers are very clever. Where there is a bank, most English hunters lift themselves on to it, then, dwelling a moment, extricate their fore legs and drop into the next field, with just spring enough to clear a ditch if there be one. Double hurdles are an identical jump. Be careful to "give the horse his head" in rising, and in his second spring, feeling his mouth and lifting him when he touches ground.

Sheep Hurdles are generally too weak to occasion a fall, and may, therefore, be "rode at anyhow," as we have heard it expressed. They are a good means of teaching the colt, and impressing on "the young idea" how to jump. Three feet to three feet six is their usual height.

Water Jumping.—In going at a brook, take hold of your horse well, and ride him at a good striding pace straight at it; choosing as good a "take off" and sound "landing" as possible. A horse to be good at brooks must be practised at smallish ones at first, which he must take in his stride at the three-quarter gallop. Few horses take water jumps kindly unless early instructed. A wide, low-banked brook, if fordable, should be so taken. Strains and overreach are often the result of the other practice, to say nothing of a rotten bank and a return by rolling over. It is superfluous to say that an overreach spoils your sport for the day; and that if you cram your horse at a water jump he will not take, he may either stop dead—in which case it is fortunate if you do not first taste the quality and sound the depth of the ditch, and so afford mirth to the field—or, if you have him not well "felt by both reins," he will swerve to right or left, and carry you a circuitous bend homewards; to repeat the gyration as many times as you bring him up to the leap.

Falling.—The author of "The Horse and the Hound" tells you "how to fall from your horse"; and quaint as is the precept, it is well worth study, as "falls," like "offences," needs must come. In all falls, the horseman should roll away from his horse as soon as he possibly can, lest in his struggle to rise again he strike him with his legs or head.

It frequently happens that the horse himself rolls after he falls, and if in the direction in which his rider lies, is apt to crush and injure him. Indeed, there is scarcely any hard rider who has not been thus served ; but here, again, self-possession often stands his friend. When he sees the body of his horse approaching him, he frequently saves himself by meeting it with one of his feet, and, by obtaining a fulcrum, shoves his own body along the ground out of his reach. Coolness in this hour of peril likewise serves the sportsman in another way. Instead of losing hold of his reins, and abandoning his horse to his own will, as the man who is flurried at this time invariably does, he keeps them in his hand—if not always, perhaps in nine falls out of ten—and thus secures his horse.

CHAPTER XIII

RIDING TO HOUNDS—THE CHOICE OF A HUNTER

THE modern hunter, to “live the pace,” must be a blood-horse, or one of those very best of stout cocktails who, with four-fifths of “blood” in them, pass dealer’s muster as thoroughbreds. His height should be not under fifteen nor over sixteen hands ; over the latter he will scarcely be handy through dirt and at his jumps, under the former standard he cannot so well measure the height of the object before him. True, some exceptional and wonderful, if not quite credible, cases are in tradition of the jumping of cobs and galloways, but these are so very exceptional that they do not invalidate the general rule, that under fifteen hands is too small, and over sixteen is too big for a hunter.

In a work like the present, which aims at giving the best thoughts of the best thinkers, and the experiences of the most practised upon the varied and numerous subjects of which it treats, it would be unpardonable to omit the neatest sketch of what a modern hunter is or should be, as depicted by that *facile princeps* of hunting writers, “Nimrod,” in his celebrated article, “The Chase”:

“The half-bred horse of the last century was, when highly broken to his work, a delightful animal to ride ; in manv

respects more accomplished, as a hunter, than the generality of those of the present day. When in his best form, he was a truly-shaped and powerful animal, possessing prodigious strength, with a fine commanding frame, considerable length of neck, a slight curve in his crest, which was always high and firm, and the head beautifully put on. Possessing these advantages, in addition to the very great pains taken with his mouth in the biting, and an excellent education in the school or at the bar, he was what is termed a complete snaffle-bridle horse, and a standing as well as a flying leaper. Held well in hand—his rider standing up in the stirrups, holding him fast by the head, making the best of, and being able, from the comparatively slow rate at which hounds then travelled, to pick or choose his ground—such a horse would continue a chase of some hours' duration at the pace he was called upon to go, taking his fences well and safely to the last; and he would frequently command the then large sum of one hundred guineas. But all these accomplishments would never have enabled a horse of this description to carry the modern sportsman, who rides well up to hounds on a good scenting day, over one of our best hunting countries. His strength would be exhausted before he had gone ten minutes, by the increased pace at which he would now be called upon to travel, but to which his breeding would be quite unequal, and his true symmetry, his perfect fencing, his fine mouth, and all his other *points* would prove of very little avail. If ridden close to the hounds, he would be powerless and dangerous before he had gone across half-a-dozen Leicestershire enclosures.

The increased pace of hounds, and that of the horses that follow them, have an intimate connection with each other, if not with the march of intellect. Were not the hounds of our day to go so fast as they do they would not be able to keep clear of the crowd of riders who are now mounted on horses nearly equal to the racing pace. On the other hand, as the speed of hounds has so much increased, unless their followers ride speedy, and, for the most part, thoroughbred horses, they cannot see out a run of any continuance if the scent lies well."

Colonel Cook, in his "Observations on Hunting," fully endorses this view. "Many fox hunters," he says, "prefer thoroughbred horses, others cocktails; I always gave the preference to the former, if it was possible to get them.

It is the general opinion that thoroughbred horses cannot leap so well as cocktails: I think otherwise; and if you will try the experiment, by taking ten young horses of the former and ten of the latter sort, I am convinced you will find the thoroughbred ones to have the advantage, and naturally to clear their fences with more ease to themselves. Horses that have been in training for years cannot be expected to make hunters; but, nevertheless, what superiority has a thoroughbred one in every respect—above all, in speed, bottom, and wind? It often happens, when a cocktail is at the height of his speed, a thoroughbred horse is only at three-quarters, and the latter will always go through dirt (as the term is) best.”

In the selection of a hunter, a primary consideration is the nature of the country to be hunted over. In stony and thickly-enclosed countries, the heavier and lower-bred horse may get along creditably; but in the best countries where “racing” is required, such an animal is “out of the hunt” in no time. Where a heavy, deep soil predominates, presenting also a large portion of ploughed ground, intersected by wide and strong fences, like those of Essex and some of the Midland counties, such localities will require a horse of sufficient height with much substance; while one with lighter build, and in height not exceeding fifteen hands and a half, is best adapted to a hilly country.

The sportsman who rides a weiter weight should always be “over-horsed.” It is imperative on him that he be mounted on one presenting a combination of power, activity, and durability. These are essential requisites to him; and when such a form is united with high breeding, the rider, spite of his weight, may hope to be in the *right place*. Some Irish horses are well adapted for the purpose of carrying heavy weights; and if they do not always go at a racing pace, their admirable fencing will tend to make up the deficiency. Neither are the Irish hunters at the present time defective in their breeding, as their local races and steeple-chases testify.

As to the choice of a hunter, a condensed enumeration of his “points” will serve to form an ideal of his best form.

The first property of a good hunter is that he should be light in hand. His head must be moderately small, the neck thin beneath, the crest firm, the jaws wide; it will

then form that angle with the neck which gives a light and pleasant mouth.

The forehand should be loftier than that of the racer. A turf horse may be forgiven if his hind quarters rise an inch or even two above his fore ones. His principal power is wanted from behind, and the very lowness of the forehand may throw more weight in front, and cause the whole machine to be more easily and speedily moved. A lofty forehand, however, is indispensable in the hunter; a shoulder as extensive as in the racer and as oblique, and somewhat thicker. The saddle will then be in its proper place, and will continue so, however long may be the run.

The barrel should be rounder, in order to give greater room for the heart and lungs to play, and to send more and purer blood to the larger frame of this horse, especially when the run continues unchecked for a time that begins to be distressing. A broad chest is always an excellence in a hunter. In the violent and long-continued exertion of the chase, the respiration is much quickened, and hence more blood is hurried through the lungs in a given time than when the animal is at rest. There must be sufficient room for this, or he will not only be distressed, but possibly destroyed. The majority of the horses that perish in the field are narrow-chested.

The arm should be as muscular as that of the racer, or even more so, for both strength and endurance are wanted.

The leg should be deeper than that of the race-horse—broader as we stand at the side of the horse—and especially beneath the knee. In proportion to the distance of the tendon from the cannon or the shank-bone, and more particularly a little below the knee, is the mechanical advantage with which it acts.

The leg should be shorter. Higher action is required than in the racer, in order that the legs may be clearly and safely lifted over many an obstacle, and particularly that they may be well doubled up in the leap.

The pastern should be shorter and less slanting, yet retaining considerable obliquity. The long pastern is useful, by the yielding resistance which its elasticity affords to break the concussion with which the race-horse from his immense stride and speed must come on the ground; and the oblique direction of the different bones beautifully contributes to effect the same purpose. With this elasticity

however, a considerable degree of weakness is connected, and the racehorse occasionally breaks down in the middle of his course. The hunter, from his different action, takes not this length of stride, and therefore wants not all this elastic mechanism. He more needs strength to support his own heavier carcase and the greater weight of his rider, and to undergo the fatigue of a long day.

The foot of the hunter is a most material point. The narrow and contracted foot is the plague-spot of most of our racing blood. The work of the racer is, however, all done on the turf; but the hoof of the hunter is battered over the hard road and the stony field, and if not particularly good, must soon be ruined.

The position of the feet in the hunter requires some attention. They should, if possible, stand straight. If they turn a little outward, there is no serious objection; but if they turn inward, his action cannot be safe, particularly when he is fatigued or over-weighted.

The body should be short and compact, compared with that of the race-horse, that he may not in his gallop take too extended a stride. This would be a serious disadvantage in a long day and with a heavy rider, from the stress on the pasterns, and more serious when going over clayey, poached ground during the winter months. The compact, short-strided horse will almost skim the surface, while the feet of the long-reached animal will sink deep, and he will wear himself out by efforts to disengage himself.

Every sporting man knows how much more enduring is a short-bodied horse in climbing hills, although perhaps not quite so much in descending them. This is the secret of suiting the *race-horse* to his course, and unfolds the apparent mystery of a horse decidedly superior on a flat and straight course being often beaten by a little horse with far shorter stride on uneven ground, and with several turnings.

The loins should be broad; the quarters long; the thighs muscular; the hocks well bent, and well under the horse.

The reader needs not to be told how essential temper and courage are. A hot, irritable brute is a perfect nuisance, and the coward that will scarcely face the slightest fence exposes his owner to ridicule.

It is easily credible that, entering as fully as his master into the sport of the day, the horse disdains to yield to fatigue, and voluntarily presses on, until nature is exhausted.

and he falls and dies; but much oftener the poor animal intelligibly enough speaks his distress—unwilling to give in, yet painfully and falteringly holding on. The true sportsman, though unwilling to relinquish the chase—he who “is merciful to his beast”—soon recognises the symptoms of excessive and dangerous distress. To the drooping pace and staggering gait, and heaving flank, and heavy bearing on hand, will be added a very peculiar noise. The inexperienced may fancy it to be the beating of the heart; but that has almost ceased to beat, and the lungs are becoming gorged with blood. It is the convulsive motion of the muscles of the belly, called into violent action to assist in the now laborious office of breathing.

Over-marking the hunter is a too frequent occurrence, and often requires very judicious and prompt treatment to save life. It unfortunately also happens that when death does not immediately ensue, from the congestion which has taken place in the lungs, either broken wind or founder follows, and thus the horse is equally ruined for active service. We will, however, premise that there appear to be two dangers to be apprehended from inordinate exertion: one from a cessation of the powers of life, the other from the tendency which such inordinate excitement has to produce congestion of the lungs, or active inflammation of some of the vital organs; sometimes spasm of the midriff occurs, and rupture of it has taken place.

When the vital powers have been brought almost to a standstill, the horse with great difficulty reaches home, and often scours, and stales bloody urine on his journey there. He breathes with irregularity and difficulty; becomes hot and cold by turns; or a clammy sweat breaks out, at first partially, but if he cannot rally, it becomes universal. His skin has a peculiar feel and loses its elasticity; the haw is drawn forward; the nose, at first fiery, now becomes pale; the breathing is hurried, and the pulse is found to be tremulous, and almost invariably intermitting. Some cases are marked with a settled determination in the horse not to lie down; while others not only lie down, but are with difficulty made to rise again. Bleeding as a remedy is commonly resorted to; but Blaine advises, if no active symptoms of inflammation are present, not to do so. Place the hand on the chest; does the heart vibrate quick, rather than beat lustily, by no means bleed. Press any one of the

larger veins, and, unless it swells up at once, let bleeding alone—at least, until the medical adviser arrives.

Should it, however, happen that no veterinary surgeon is near, if the breathing becomes hurried, the nostrils dilated, and the horse reaches out his neck as though reaching for more *rein liberty*, if the linings of the nose, although at first pale, now begin to look flushed and red, and the mouth becomes hot, proceed to bleed. If the vein rises well, make a large orifice, so that it may discharge the blood quickly, watching the effects of the flow. If it rushes out, and the horse does not falter, take three quarts, or even more, away. Let his head be turned to the door, and rub and bandage his legs up. As soon as the first symptoms go off, or his legs and ears become cold, briskly hand-rub them, clothe the body also, and throw up a gruel clyster; and, unless the weather be very cold, allow a free current of air, but clothe the body and give the following: Sweet spirit of nitre, half an ounce; mix with a pint and a half of gruel. Should active symptoms of weakness come on, horn down equal parts of gruel and sound ale; and should the debility increase, horn these down every half hour, with occasional full does of opium also, to allay irritability in the system, and to arrest the looseness that is usually present.

When active inflammation follows the over-exertions of a hard day, the over-marking does not immediately show itself. The horse probably appears at first only moderately fatigued, but he soon gets a strong shivering fit, accompanied with an oppressed pulse. The lining of the nose becomes highly injected, and the breathing much disturbed. The symptoms which follow vary according to the organ which is the principal object of attack, and the treatment also must vary with that. While proper medical assistance is procuring, the groom, under these symptoms, with propriety may bleed, back-rake, and bandage up the legs if cold; but he should avoid giving any heating, *i.e.*, stimulating drinks, under the name of cordials; indeed, he should not give any thing supposed to be medicinal, until the horse has been seen by a veterinary surgeon.

CHAPTER XIV

BREEDING FOR GENERAL PURPOSES

It is proven that in respect of diseases there are few which affect either of the parents constitutionally that the foal will not inherit, or, at least, a predisposition to them. Even the consequences of ill usage or hard work will be entailed in the progeny. We have proof upon proof that blindness, roaring, thick wind, broken wind, spavins, curbs, ring-bones, and founder, have been bequeathed, both by the sire and the dam, to the offspring. It should likewise be recollected that, although these blemishes may not appear in the immediate progeny, they frequently will in the next generation. Hence the necessity of some knowledge of the parentage both of sire and dam.

Peculiarity of form and constitution will also be inherited. This is a most important consideration; for however desirable, or even perfect, may have been the conformation of the sire, every good point may be neutralised or lost by the defective form, or want of blood, of the mare. When breeders are careful that the essential points should be good in both parents, and that some minor defect in either shall be met, and got rid of, by excellence in that particular point in the other, the result is creditable to their judgment, and highly profitable. The unskilful or careless breeder will often so badly pair the animals, that the good points of each will be in a manner lost, the defects of both will be increased, and the produce will be far inferior to both sire and dam.

That the constitution and endurance of the horse are inherited, no sporting man ever doubted. The qualities of the sire or the dam descend from generation to generation, and the excellencies or defects of certain horses are traced, and justly so, to some peculiarity in a far distant ancestor.

In breeding the half- or three-quarter-bred horse, different men go on different principles. The generality put a half-bred mare to a thoroughbred sire, a mode that is mostly attended with the best success. Some use the thoroughbred mare and half-bred sire, while others breed from sire and dam half or three-quarters bred. In several

instances we have known the experiment tried of putting a cart-mare to a thoroughbred sire, and *vice versa*; but have never yet seen this answer. The produce from such a connection does not, as might be expected, possess the strength of the cart-parent, lightened by the thoroughbred throughout his general formation, but is mostly a brute with light legs and body, with the head and shoulders of the cart-horse; or, at all events, in some parts or other of his form he will be this kind of nondescript; at least, all we have seen bred by such a cross have been so. The fact that the produce outwardly more resembles the sire than the dam leads many people into the very great error of being careless in their choice of mares. The Irish breeders err particularly in this respect; for, speaking in a general way, provided they get a good sire, they put the veriest wretches on earth to him. To this practice we may attribute the fact that Irish horses have hitherto been more "cross-made" than English. This peculiarity of form is gradually getting less particular as they improve their breeding. There are certainly fewer of what the dealers facetiously call "three-cornered" horses from the sister isle than formerly.

It may, perhaps, be justly affirmed, that there is more difficulty in selecting a good mare to breed from than a good horse, because she should possess somewhat opposite qualities. Her carcase should be long, to give room for the growth of the foetus, and yet with this there should be compactness of form and shortness of leg. "If horse-breeders, possessed of good judgment, would pay the same attention to breed and shape as Mr. Bakewell did with sheep, they would probably attain their wishes in an equal degree, and greatly to their advantage, whether for harness, for saddle, or for hunting."

The mare is capable of breeding at three and four years of age. There have been injudicious instances of their being made mothers at two years, which may be passed without comment. The mare comes into "season" about February, and continues "horsing" at intervals until the end of June or the middle of July. The term of gestation of the mare is between eleven to twelve months; these periods forming its ordinary limits. According to M. Tessier, who observed the result in 582 mares, who had conulated but once, the shortest period was 287 days, the

longest 419, making the extraordinary difference of 132 days, and of 89 days beyond the usual term of eleven months. It is a mere supposition that the mare carries her first foal longer than subsequent ones; neither does the term vary on account of the offspring being a filly or a colt. With race-horses, who take their age from the 1st of January, and who are brought to their post at two years old, early foaling is of the first importance. With other breeds, who do not figure in Weatherby's register, the beginning of May is the most desirable time for stinting them. The foal will then be dropped in the following April, when there is pleasant air, and natural food for dam and offspring, and they need not be so much in stable.

When nearly half the time of pregnancy has elapsed, the mare should be petted and varied in her food. This is about the period when they are accustomed to sink their foals, or when abortion occurs; at this time, therefore, the eye of the owner should be frequently upon them. Good feeding and moderate exercise will be the best preventives against this. The mare that has once sunk her foal is ever liable to the same accident, and therefore should never be suffered to be with other mares about the time that this usually occurs, which is between the fourth and fifth months; for such is the power of imagination or of sympathy in the mare that if one of them suffers abortion, the greater number of those in the same pasture will share the same fate. The mare gives a day or so notice of the "event," by the appearance of adhesive matter about the teats. Even up to this time gentle work will not hurt her.

If a mare has been regularly exercised, and apparently in health while she was in foal, little danger will attend the act of parturition. If there be false presentation of the foetus, or difficulty in producing it, it will be better to have recourse to a well-informed practitioner, rather than injure the mother by the violent and injudicious attempts which are often made to relieve the animal. For further instructions regarding foaling, see Chapter XXIII.

As soon as the mare has foaled, she should be turned into some well-sheltered pasture, with a hovel or shed to run into when she pleases, and as, supposing she has foaled in April, the grass is scanty, she should have a couple of feeds of corn daily. The breeder may depend upon it that

nothing is gained by keeping the mother and foal on "short commons" at this time. It is the most important time in the life of the horse; and if, from false economy, his growth be arrested now, his puny form and want of endurance will ever afterwards testify the error that has been committed. The corn should be given in a trough on the ground, that the foal may partake of it with the mother. The mare will usually be found at heat at or before the expiration of a month from the time of foaling, when, if she be kept principally for breeding purposes, she may be put again to the horse.

One of the great things to be desired in a brood mare, after having properly selected her, is to render her perfectly familiar and quiet; she should be brought to be as tame as a pet sheep. Nearly all mares by kind and gentle treatment may be brought to this. The being perfectly free from alarm produces a general placidity of temper that is highly desirable in any breeding animal as to their well-doing; fright, we all know, when in this state, has often most fatal effects both on mother and offspring. Reasoning, therefore, on analogy, if absolute fright is often fatal, constant alarm or apprehension must be prejudicial. Independent of this, mares galloping about to avoid being caught whenever they are approached is highly dangerous, and, after the foal is produced, he naturally follows the mother; if she is wild, the colt becomes so, and learns from her to avoid man as his enemy, whereas he should be taught to hail him as a friend. The mare should be taught to come up to man the moment he enters her paddock or pasture, from always gaining caresses and indulgence when she does so. A little corn from a sieve, or a carrot from the hand, will soon teach her this, and if, when laid hold of, she gets this and caresses, and is never suffered to be alarmed, she will come as readily and willingly as a favourite dog.

What, then, is the result of the tameness of the mother? The foal naturally follows her either to or from you, and, from constantly approaching man, he becomes familiar; and, as a matter of course, never being hurt or alarmed, he in a few weeks has no more fear of him than of his dam, and will suffer himself to be handled in any way you please. As soon as he is able to eat, he should get something from the hand, and will, from this, watch for the approach of man, instead of (as most colts do) galloping away to avoid

him. A flock of sheep follow the shepherd from habit, and finding him their friend. A herd of deer, from want of habitual intimacy with man, avoid him, but a tame deer is as tame as any other pet ; and so will mares and colts be if properly treated. Even supposing there was an inherent vicious propensity born with a colt, by beginning thus early with him it would, in most cases, be eradicated ; if not, it would to a certainty be most materially softened.

To return, however, to the new-born foal. It is not generally known that the refusing to suck, which is the cause of the death of many foals, as well as the scouring, which about the third day kills many more, are both produced by irritation, and consequent inflammation of the bowels, from the retention of a few small hard fæces in the rectum. These are generally more in quantity in proportion as the keep of the mare has been high.

The cure is simple : a few hours after the foal has been dropped, a tallow candle should invariably be passed into the rectum, and when the passage has been sufficiently softened, the fæces can easily be extracted by the finger.

In cases where scouring kills foals at a subsequent period, it is generally attributable to the foal heating itself by violent exercise ; consequently the mare, for the first day or two that she is let out (supposing her to be housed), ought only to be walked about with a halter, and the same practice pursued at the time of her first horsing.

Some mares will not allow their foals to suck. This arises from the tenderness of the teats ; and in this case they should have their heads tied up, and, if necessary, be otherwise prevented from kicking while they are milked by hand ; and the milk should be rubbed over the teats for some short time, after which they will allow the foal to suck.

Should the mare's milk be obstructed and fail, either from cold caught or other cause, if out, she should immediately be taken up to the house, and enticed to lie down upon a large and deep-littered bed of fresh straw, in a loose box, and every method taken to comfort her, and to encourage the secretion of milk. To promote this end, as much warm, mild ale should be allowed as she would drink, or should she refuse it, she may be drenched with a couple of quarts, to be repeated as may appear necessary, her food being the finest and most fragrant hay, sweet grains, with

mashes of corn and pollard. In cases of *chill* and great weakness, the old well-known article, cordial ball, may be given in warm ale.

Should, however, the case be inflammatory from previous high condition and fulness of blood, cordial ball and all stimulants should be strictly avoided, and the regimen confined to warm water and gruel, in as copious quantities as can be administered. Should further measures of similar tendency be indicated, a mild solution of Glauber's or Epsom salts (ten or twelve ounces in a pail of warm water) may be given, which she may be induced to drink by means of being kept short of water. A moderate quantity of blood may be drawn, should the symptoms demand it; not otherwise. Daily walking exercise abroad, the mare being clothed if necessary, should succeed, until she be sufficiently recovered to be returned to her pasture.

During the inability of the mare to give suck, the foal must be sustained on cow's milk. This alien milk will generally disorder and gripe the foal, for which the best remedy is two or three spoonfuls of rhubarb in powder, with an equal quantity of magnesia in warm gruel. This medicine should be given to the foals of working mares, which are often griped by sucking pent milk. The disorder arising from wet and cold, a tablespoonful each of the best brandy and syrup of white poppies may be given several times.

Mares having dead foals ought to lose a little blood, be fed moderately on cooling mashes with a little nitre, and on no account be allowed corn. Moderate walking exercise is very desirable for mares before foaling; and alternate mashes of plain and of scalded bran are much to be recommended.

It should be observed that geldings should not be admitted among the brood mares, as by leaping them, or harassing them about, abortion may be occasioned.

In five or six months, according to the growth of the foal, it may be weaned. It should then be housed for three weeks or a month. A rick-yard in good weather is a capital place for the foal, as affording, without trouble, both food and shelter. One or two urine balls, or a physic ball, will be useful if the milk should be troublesome, or the mother should pine after her foal.

There is no principle of greater importance than the

liberal feeding of the foal during the whole of his growth, and at this time in particular. Bruised oats and bran should form a considerable part of his daily provender. The money is well laid out which is expended on the liberal nourishment of the growing colt; while, however, he is well fed, he should not be rendered delicate by excess of care. A racing colt is stabled; but one that is destined to be a hunter, a hackney, or a general horse should merely have a square rick, under the leeward side of which he may shelter himself, or a hovel into which he may run at night, or out of the rain.

CHAPTER XV

THE SHOEING OF THE HORSE

CONSIDERING the apparent simplicity of the process to an ordinary observer, the method of fastening a piece of iron to the horse's foot has been the occasion of more dissertations, essays, guides, manuals, "practical" instructions, theories, disputes, and—we sorrow to write it—hard words and abuse, than any subject we are acquainted with. It will be our aim here rather to simplify the matter than to overload it; and instead of wearying the reader with the investigations of something like a hundred (many of them ingenious) writers on the mode of defending the horse's foot, endeavour to combine the proven facts of all with the results of our own experience in a plain and succinct compendium.

Shoeing is a necessary evil. Among the evils inseparable from every kind of metal shoe is the severe battering upon hard roads, rendered yet more severe by the interposition of an unyielding substance, such as iron. Every step the horse now takes is made upon iron; and the wonder should be, not that a foot occasionally gives way, but that any part of a living frame should be able to withstand such treatment. Then, not only are the roads hard, and the pace at which the horse is driven along killing, but we have also to weigh properly the treatment the horse receives within the stable. Here he stands often for days together, cramped in a stall where he can only stand; frequently he cannot turn

round, and very seldom can he lie upon his side, and stretch out his limbs. He stands here generally for twenty hours out of the twenty-four, with iron upon his feet, resting upon wet stones or damp bricks. No wonder if the feet should become cold; and those who are accustomed to bleed horses from the foot can tell how cold the first drop or two of blood flows from the part, owing to muscular action being suspended, which is necessary to circulation and to vital warmth.

As we address ourselves specially to those who love the horse, it will not be too much to ask the horse-owner to spare an hour a month to see his horse or horses shod. Many a valuable horse may thus be saved some suffering, if not injury. Do not have your horses shod at an ill-lighted place, but one with side-lights as well as sky-lights. Cast your eyes about for signs of drinking, and see that there is no screaming or bawling at the horses, rough tossing of the hammers and tools, and a prevalence of cant and self-sufficiency—all these we have seen, but never in conjunction with good shoeing and trustworthiness. See, too, that in tying up, the halter or rope does not annoy the horse's ears or fore top, rub his eye, or constrict his throat, as a "vicious" resistance, as it is called, is often thus established.

With these preliminary remarks, we shall proceed to the Practice of Shoeing.

Preparation of the Foot.—The horse is standing in the forge with his old shoes on, and these have to be taken off. We have gathered much of the character of the smith by watching the way he has gone about this seemingly trivial preliminary. See that he handles his "buffer"¹ properly, and does not cut pieces out of the hoof in raising each clench separately. The clenches of the nails should be raised, which few do; but, after turning one or two of them, he seizes first one heel, and then the other, and wrenches them loose, then seizing the toe with his pincers, tears off the iron. By this the hold of the new shoe is weakened, the nail-holes enlarged, and sometimes a portion of the hoof splintered or torn off. The horse often shows that he suffers by a sudden shrinking or trembling when the pincers are thus used. Stubs, too, are sometimes left in the crust of the foot by this off-handed violence, and

¹ The buffer is a square, short iron knife.

prove the seeds of future lameness or exfoliation, to say nothing of the animal being rendered timid and difficult to shoe.

The general principle of healthy shoeing is to support the foot off the ground by means of the "wall," and by this only ; so that the frog shall not come in contact with the hard, plain road, whilst it may be allowed to receive pressure upon going over soft ground. The first prevents injuries and resists wear and tear, the latter promotes the secretion of healthy horn, by a proper degree of pressure—that is to prevent this being received by the heel, frog, and bars. Whatever is here said, the fore foot is still kept in view, unless the hinder foot is particularly mentioned ; and occasion will present itself for the distinction, as there is great difference in the wall and other external shape between the two, especially as regards heavy draught cattle. The shoe removed, the crust is to be rasped down at the edges ; and although a little roughness may be exercised in this, yet there is little danger of injury to the hoof, only that too much must not be removed, so as to render it too thin.

The hoof requires considerable labour to pare, and this is of great importance to the comfort of the animal, as well as his safety on the road. It is a part of the operation of shoeing which is too often done in a hurried and slovenly manner. We would advise the owner of the animal, when he employs a new or strange farrier, to see that paring is thoroughly performed ; because, if the sole is not well pared, its elasticity will be destroyed, and the internal portion be prevented from descending. This will impair the functions of the foot, and induce many of the maladies to which it is liable—navicular disease, contraction, corns, inflammation, and the diseases of which we have already treated. Nothing is of more consequence than to prevent an accumulation of the horny substance of the sole, which, it is easy to see, must increase, because, being protected by the shoe, it cannot get worn down as it would in a natural condition. Sufficient thickness should be left so as to protect the internal parts of the foot from injury, and enough taken away to allow the external sole to descend. This can easily be determined by the pressure of the thumb on the sole, which should yield slightly in all its breadth.

It will happen that the horn of the sole becomes so hard that it is removed with very great difficulty, in which case it becomes necessary to soften it by heat. This is effected by means of a flat heated iron, drawn over the sole, and even kept close to it for a little time. If the sole is thick, no injury will be sustained from it, and, on the contrary, it will render the paring more easy and less disagreeable to the horse; but if the sole has been regularly pared out during shoeing, this must not be permitted. The quantity of paring necessarily varies much, according to the formation and condition of the foot. The foot which is pumiced should only have the ragged parts cut away; when the foot is flat, little paring is needed; from that which is concave, the crust must be pared until it yields slightly to strong pressure from the thumb; if the foot is strong, a great deal of paring is requisite. Care must always be taken that the crust is not reduced to a level with the sole, as this would permit the sole to press upon the edge of the seating, and thereby be bruised and injured. The entire circumference of the crust should be perfectly level, but projecting a little beyond the sole.

We must now direct attention to the heels. More stress is thrown on the inner heel than on the outer, and, from natural weakness of the quarter there, it generally wears quicker than the outer one. This being the case, less horn must be pared from it than from the outer, as taking the same quantity of horn from it would leave it lower than the other, whereas they should be perfectly on a level. Almost all smiths have a fancy for opening the heels, from the idea that it does good by rendering the foot neater, which is a fallacy, as they ought seldom or never to be touched; nothing should be removed but the ragged portions.

It is intended that the heel of the shoe should rest partly on the heel of the foot; consequently the bars should be allowed to remain nearly in its natural condition from its first inward bend, and down the side of the frog. When the frog becomes level with the crust, however, paring of the frog becomes necessary. The quantity to be taken from the frog depends on its greater or less prominence, and the shape of the foot. It should project so much as to be just within and above the inner surface of the shoe; that is, upon a level with the hoof when no shoe is on the foot. This will give it room to descend with the sole. If it is much

higher, the bars will contract; if lower, it will be bruised on hard roads.

When the foot is fitted to receive the shoe, the bottom somewhat resembles the hollow rim of an oval dish. Being placed on a plane surface, the frog and heels should bear equally, leaving the thickness of the shoe, as above explained, to save the frog. At the heels, for an inch of its length, the rim of the shoe is to project a trifle outside the hoof, lest the growing horn should cause the shoe to embed itself at this part, where the substance is soft and the wear little.

Having completed our directions for the preparation of the foot, we will here interpose a few paragraphs on the forming of the shoe, and its material, as a more fitting opportunity will not present itself.

Making the Shoe.—The forge of the modern smith, in addition to bars of iron of various thicknesses, from which to select such as may come nearest to the size and weight of shoe required, is supplied with a large assortment of shoes ready made, hanging on the walls or disposed on bars. These being placed horizontally, with the shoes ranged on them, are much more handy to select from than when piled one upon another, as is common, with a perpendicular bar of iron to keep them from slipping down. The modern malleable cast-iron shoes are very durable and economical. In working up old shoes, one and the half of another will be found an average quantity for a new one. This half should be laid on one side of the old shoe, then the half of the entire one lapped over it; thus, when welded into a mass, the middle of the quarter of the old shoe will form the toe of the new one. The hind shoes are thus made of old shoes, the work not being in general so regular and neat as that of the fore shoes.

In forging the shoe from the bar, a piece is to be cut off somewhat shorter than the intended shoe, to allow for extension under the hammer, and that there may be as little waste as possible by cuttings from the heels when the shoe is finished. Two or three of these pieces may be placed in the fire at one time, to save fuel. With saddle horses, however, it is an expeditious, as well as more correct, method to divide or cut the bar into pieces or lengths forming pairs, according to the sizes required. The iron for these shoes not being very stout, there is no difficulty in turning

it in the tongs over "the bick" with the hand-hammer; but with the heavier cart-horse shoes, it is usual not to cut it from the bar till a circular figure is given it, for which the bar itself serves as a powerful and convenient handle. Some, however, prefer cutting the cart-horse iron into equal lengths first, as we have just described, and then bending these pieces, by placing one end upon the anvil, and resting the other against the head of the sledge-hammer, bending it by a few blows of the hand-hammer, which thus gives to all the shoes an equal weight and size. The iron, having received the requisite curve, is then cut off, and is termed "a mould."

It is usual for the workman to finish the outer limb of the shoe first, which being roughly formed, and the web thinned and hollowed out, is commonly reversed by the smith; that is, the hammered side is brought to the anvil, that which was before next the anvil being more smooth and uniform in its surface, and of better appearance.

The shoe, or rather the outer limb of it, is then fullered; that is, a deep groove or channel is driven round it, at a small distance from the outer edge, indenting it more than half through the thickness of the iron. The tool for "fullering" is a sort of chisel, about four inches long and two wide, flat and almost concave on one side and very convex and rounded on the other, and circular below on its cutting edge. It is generally used in a rod of hazel, the flat side to the interior of the shoe, and the convex side to the exterior; it is hastily driven along the limb, deeply indenting it, and forming a channel at a suitable distance from its exterior edge. The fullering is useful on several accounts, as preparing it for the nails, as the pritchel can then pass through the iron without much difficulty; it also renders the shoe somewhat wider without adding to its weight, and gives it a much more agreeable and lighter appearance. The hind shoes, even for saddle horses, are often not fullered—at least, only on the sides and for a short distance; nor are the cart-horse shoes, either fore or hind.

The outer limb being finished, the inner limb is next formed, somewhat narrower and finer than the other—that is, straighter, and less projecting in the middle exteriorly; the nail-holes, also, are more carefully brought nearer to the exterior edge, and are made smaller, especially the last, and not so far back, or near to the inflexures, as in the outer

limb ; and generally with four holes only instead of five, the number usually given to the outer limb. The inside quarter of the horse's hoof is very often bent and curved inwards about its middle height ; whereas the outer is quite straight, or frequently somewhat bulging exteriorly at this part, and requiring less care in driving the nails, and distinguishing easily the feet, whether off or near.

In forming the nail-holes, attention must be paid to the direction or sloping of the hoof, as those nearest the toe or front of the shoe should be made strongly sloping backwards, agreeably to the figure of the hoof at this part, whilst those on the sides or quarters of the hoof should be more upright, otherwise it must be obvious the nail cannot be inserted in the hoof without bending in the hole to accommodate this difference of direction.

In the next place, the "pritchel bumps" and "burs" in the iron about the holes are to be knocked down ; these arise from the distension of the metal by the entrance of the pritchel, and are seen upon the outside of the rim of the shoe, and also on its upper surface. This is done upon the anvil-bick by chasing the shoe round with the hammer. The burs, also, should be forced down, as they endanger coming in contact with the sole, or "vein" as the smiths call it, which is running round it. Lameness may result from this cause, when, on the removal of these roughnesses, the horses have gone well again.

Form of the Shoe.—The surfaces, also, of the web of the shoe will admit of great variety of form, which do not at all constitute a change of principle, as has been vulgarly apprehended. It is the mode only of figuring the ring that is changed, the principle remaining the same. On the whole, those made concave next the foot or opposite the sole, and flat below, to the ground, are with good reason preferred by the soundest and most experienced writers on this subject. However, a shoe such as is commonly made, with the web and whole upper surface with a gentle inclination inwards, is as good and useful a shoe as any, and has this great recommendation belonging to it, that it is the most readily made. The former, or seated shoe, can be made rather lighter perhaps ; but its flat level upper surface, where it receives the hoof, is not so good, we believe, as a very gentle inclination or slope of this part, as by its flatness it is more liable to split the hoof, and to carry oppressive

bearing towards the vein and sole. The concavity is useful in admitting the play of the sole, and in permitting the free use of the picker, and letting out again all dirt or stones that may get in.

Putting on the Shoe.—The first thing is the selection of the shoe; and in this, experience and a judicious eye is worth all the writing and book-learning of a college. The judgment of a shoeing smith is shown in the adaptation in quantity and quality of the iron to the horse. The thick-walled foot will require a good bearing; the thin hoof cannot carry a heavy shoe, though it stands most in need of defence. The hoof, too, should guide the farrier in the number of nails. The shoe is the work of the "fireman," as he is called in the forge; the preparation, of the "doorman," who also nails on and clenches the shoe made by the "fireman." The "doorman" takes the task of preparing the foot, as already described, to receive the shoe, by removing the superfluous horn of the sole.

For hunting, the shoe must be narrower than for the road, and an additional nail may be placed on the inside; no evil will result from this, because in the field the pressure on the crust is, in a great degree, relieved by the sole and frog. There must be space for a picker to pass between the foot and inner rim of the shoe, but no more, as the foot can then be withdrawn from heavy soil with less difficulty than when the usual space is permitted. To avoid overreaching, the heels of the fore shoes should scarcely project beyond the heels of the crust, and they should be rounded off, instead of being left square, as is usually the case. The hind shoes should also, where there is any disposition to overreach, be square at the toe, set a little within the crust; and the inner rim at the toe should have a piece cut out, so that, instead of a sharp edge, there should be a rounded surface, which, of course, is not so likely to catch the heels of the fore feet.

Nailing requires much previous study of the formation and functions of the internal sensible parts of the foot, many injuries being inflicted by penetrating those parts to the quick. A good aphorism has it thus: "If it were possible to keep the shoe in position without nailing, we should then have arrived at perfection in the art of shoeing; it follows that the least number of nails that are driven, consistent with safety, is the most commendable practice."

The nails for shoeing horses are received from the hands of the manufacturer soft, without point, variously bent, and unfit for use till they have passed through a process, requiring some dexterity, called "pointing the nail"; they receive for this purpose a smart hammering from the hand of the "doorman," on an upright steel-headed shaft, termed "the stake," beginning at the head of the nail and continuing it along the shank on both sides and edges to its extremity, which is then drawn out to a clear point. By this means the nail is rendered hard and stiff, and its surface smooth and polished. But of as much or more consequence than this is the figure which the point of the nail is made to receive; for after it has been drawn to a clear, good point, the workman gives it a final stroke, obliquely directed over or upon the very extremity of the nail, so as to impart to it the figure of an inclined plane on one side, leaving it perfectly flat on the other. This bevelling of the point of the nail is of the greatest use in driving it, giving it always a tendency to pass out of the hoof, from the bevel being placed next the interior of the hoof, which facilitates the process of shoeing very much, and greatly diminishes the risk of pricking the horse; for the foot, being softer within than it is externally, would naturally draw the nail in that direction.

The nail mostly used at present has a long, conical, square head, with a view of fixing it tight to the shoe; and the pritchel point is directed to be made of the same figure, that it may be the more firmly fixed.

This conical nail, when made too long in the head, or neck, is apt to enter the hoof and distend it unduly, rending or splitting the horn; a short shoulder or neck is therefore to be preferred.

The first nail usually driven is one near the toe, on the side of the foot next the right hand of the workman, as more convenient to the hammer. This may draw the shoe out of its place, which is again adjusted by a blow or two of the hammer on the projecting side, bending the nail or forcing the hoof, or both; the second nail is then passed through the hoof on the opposite side, which renders it in a degree fixed; the rest are then driven indiscriminately; smaller nails are, however, used near the heels or inflexions, on account of the horn being thinner. The presentation or planting the point of the nail first in the hoof, in order to

give it a proper direction for driving, is called by the smiths "pitching the nail"; this is done with the finger and thumb, and on its being judiciously chosen, the success of driving the nail, it is obvious, will much depend. In giving the first strokes of the hammer, they strike, not on the flat part of the head of the nail, but on its exterior edge; and when safe in the hoof, or nearly home, upon the flat head. The smith is led to judge by the sound, as also by the resistance the nail makes to the hammer, whether it be in its right course or not, and he aims to bring out the nails as nearly at equal distances round the hoof as may be, and at equal heights up the hoof, the accuracy of which exhibits the skill of the workman. On the first entering of the nail, he proceeds with caution; but when the point is felt by the finger, or makes its actual appearance, he strikes more boldly till the head is driven home to the shoe. The nail having passed through the hoof, the shank or extremity of it is turned down and bent against the side of the hoof, so that the horse, in struggling or suddenly withdrawing his foot, should not tear the clothes or wound the thigh of the workman.

The nails being driven and turned down, the smith next proceeds to give them all round a smart hammering upon the head, to fix them more firmly; and by holding the pincers to the shank of the nail, he draws the shoe tighter against the hoof. This done, he wrings off the shank or point of the nail, and files the clenches with a rasp to a uniform length, filing away, also, a little of the hoof, that they may lie the more closely. He should not use too much force, as that may draw the sole too strongly against the coffin-bone, and distress, stun, and benumb the sensitive sole. Now, by reversing the situation of his pincers and hammer, and holding the former against the head of the nail, which prevents its return, he beats down the clenches with his hammer, and forces them into the hoof. The clench is in part embedded in the hoof; but if any part projects, or if there should be any irregularities, they are removed with the rasp, and the process is completed.

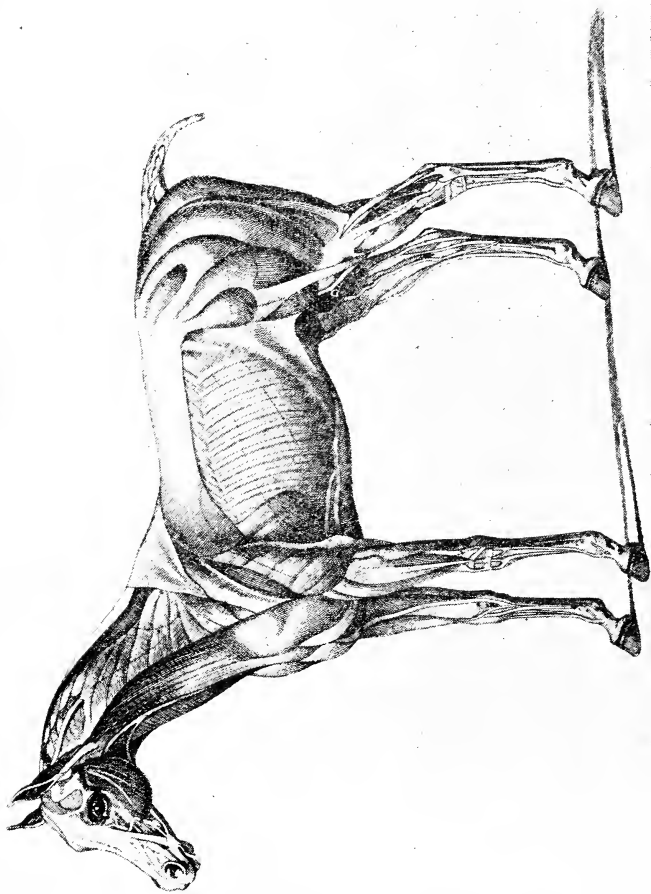
Of the manner of attaching the shoe to the foot, the owner can scarcely be a competent judge; he can only take care that the shoe itself shall not be heavier than the work requires—that for work a little hard the shoe shall still be light, with a bit of steel welded into the toe—that the nails

shall be as small, and as few, and as far from the heels as may be consistent with the security of the shoe; and that, for light work at least, the shoe shall not be driven on so closely and firmly as is often done, nor the points of the nails be brought out so high up as is generally practised.

The Hinder Shoe.—As the hinder limbs are the chief instruments of progression in the animal, except while walking, the whole stress of the frame rests upon them. In consequence of this, the shoes of the hind feet are always made broader than those of the fore feet, and the toe is widened still more by rasping. When there is the slightest tendency to overreaching, the toes of the hind feet should be shortened by sloping in the surface, and rendering the shoe somewhat less projecting than the toe. The hinder differs a little from the fore foot, in being straighter in the quarters. The nails in the hinder shoe should be situated nearer to the heel than in the fore shoe.

Calkins.—It is scarcely possible that a shoe thinner at the heel than at the toe can ever be serviceable; on the contrary, it will generally occasion lameness by throwing undue stress on the flexor tendon. It will be a fruitful source of sprain of the back sinews, also of navicular disease. On the other hand, a shoe a little elevated at the heel may favour a leg weak in the back sinews. In the hinder foot, and particularly in draught horses, custom has sanctioned the use of a shoe raised at the heel by calkins. This certainly gives the horse a better purchase; enables him to descend a hill more securely, as well as to draw a heavier load. A draught horse always digs his toe into the ground when he has a heavy weight to move; and he can do this more effectually when the heel is raised. But this practice is carried to an absurd and ruinous length. In many horses of heavy draught, the only bearing points—the only parts of the shoe which touch the ground—are the tip of the toe and the end of the calkin. There must be inequality of pressure here, and by it the ossification of the cartilages, enlargement of the pasterns; and other diseases with which the draught-horse is often afflicted, are too well accounted for by shoes too high in the heel.

Clips are portions of the upper edge of the shoe, hammered out and turned up in such a way as to lap over the outer surface of the crust, which is also pared away a little, to bed the clip. Their use is to give better security in attaching



THE MUSCLES OF THE HORSE.

the shoe to the foot, and lessening the stress upon the nails, which might prove injurious. In horses subjected to heavy draught, clips are indispensable, and are useful to all employed in draught of any kind. They will be found a useful preventive in securing the shoes from being torn off, when the strain is great on the feet while drawing. Clips are also beneficial when horses are given to stamping and pawing, as either of these tricks are likely to loosen the simple shoe. But clips should only be used in such horses as we have named, because they press upon the crust as it grows down, and are therefore unsuited to animals employed in light draught or hackneys.

CHAPTER XVI

HORSE MEDICINES AND REMEDIES—DOSES— PURGATIVES—BALLS—BLISTERS—CAUSTICS — STIMULANTS — DRINKS — LINIMENTS — MASHES—POULTICES—LOTIONS, ETC., ETC.,

Alteratives.—This is a class of medicines much misunderstood by the farrier. They are supposed to act upon the system in a slow and nearly imperceptible manner. They form the excuse for that vile propensity of grooms to dose the unlucky horse on all occasions, to the injury of his health and often of his constitution.

These medicines are indicated in diseases of the skin, defective secretions, and debility of stomach. The alteratives in most repute among farriers are nitre, antimony, sulphur, mercurial preparations, resins, and spices; to these many add every drug and compound in the pharmacopœia. For ourselves, we would fain abolish the word alterative altogether as a vague generality and mystifying term for any disorder, and a cloak for ignorance; as, however, it is in constant use, we must retain it, confining it to medicines for the amendment of the state of the skin and general excretions. The leading formulæ for alteratives are :

(A) IN DISORDERED STATES OF THE SKIN.

Emetic tartar	5 ounces.
Powdered ginger	3 ounces.
Opium	1 ounce.

Syrup enough to form 16 balls: one to be given every night.

(B) SIMPLY COOLING.

Barbadoes aloes	1 ounce.
Castile soap	1½ ounce.
Ginger	½ ounce.

Syrup enough to form 6 balls: one to be given every morning.

(C) IN STRANGLES.

Barbadoes aloes	1½ drachm.
Emetic tartar	2 drachms.
Castile soap	2 drachms.

Mix.

(D) ALTERNATIVE BALL FOR GENERAL USE.

Black sulphuret of antimony	2 to 4 drachms.
Sulphur	2 drachms.
Nitre	2 drachms.

Linseed meal and water enough to form a ball.

(E) FOR GENERALLY DEFECTIVE SECRETIONS.

Flowers of sulphur	6 ounces.
Emetic tartar	5 to 8 drachms.
Corrosive sublimate	10 grains.

Linseed meal mixed with hot water, enough to form 6 balls, one of which may be given two or three times a week.

(F) IN DEBILITY OF STOMACH.

Calomel	1 scruple.
Aloes	1 drachm.
Cascarilla, gentian, and ginger, of each, in powder	1 drachm.
Castile soap	3 drachms.

Syrup enough to make a ball, which may be given twice a week, or every other night.

Anodynes—This class of medicine is given to soothe the general nervous system, or to relieve spasm, as in the case of tetanus. Opium may be said to be almost the only anodyne in routine veterinary practice, and may be safely administered to the horse in very large doses.

Anodyne Medicines compounded.

(A) IN ORDINARY CASES.

Opium	1 drachm.
Castile soap	4 drachms.
Ginger	2 drachms.
Oil of caraway	1 ounce.

Syrup to form a ball, dissolve in half a pint of warm ale, and administer as a drench.

(B) IN COLIC.

Powdered opium	2 drachms.
Camphor	2 drachms.
Castile soap	2 drachms.
Ginger	2 drachms.

Mix with liquorice powder and treacle to the consistency of a ball, and give every hour during the agony.

(C) IN DIARRHŒA OR SUPER-PURGATION.

Tincture of opium (laudanum)	1 ounce.
Gum arabic (dissolved in 1 pint of boiling water)	2 ounces.

Add—

Oil of peppermint	25 drops.
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A drench. Give night and morning while indicated to be necessary.

(D) IN CHRONIC DIARRHŒA.

Tincture of opium	$\frac{1}{2}$ ounce.
Powdered chalk	1 ounce.
Gum arabic	1 ounce.
Peppermint water	8 ounces.

Night and morning.

Antispasmodics.—This is not a large class of medicines

in veterinary practice. We may refer to the chief anodyne—opium—as the chief.

They, as their name imports, are intended to suppress or counteract the excessive muscular action called spasm, or cramp. These attacks are rather secondary to other irritating causes, and therefore remedies to attack the cause are more to be relied on than combating the effect. There are, however, two or three as palliatives, which may be administered with advantage. Camphor, hyoscyamus (henbane), belladonna, oil of turpentine, and asafoetida have proved useful. Cold suddenly and continuously applied is a powerful antispasmodic, and has succeeded in subduing tetanus.

Antispasmodic Recipes.

(A) FOR COLIC.

Spirits of turpentine	3 ounces.
Tincture of opium	1 ounce.

Mix with a pint of warm ale, and give as a drench.

(B) ANOTHER DRENCH FOR COLIC.

Spirits of turpentine	3½ ounces.
Tincture of opium	1½ ounce.
Barbadoes aloes	1 ounce.

Powder the aloes, and dissolve in warm water, then add the other ingredients, and give as a drench.

(C) CLYSTER IN COLIC.

Spirits of turpentine	6 ounces.
Aloes	2 drachms.

Dissolve in 3 quarts of warm water, and stir the turpentine well into it.

(D) ANTISPASMODIC DRENCH.

Gin	4 to 6 ounces.
Tincture of capsicum	2 drachms.
Tincture of opium	3 drachms.
Warm water	1½ pint.

Mix, and give as a drench, when there is no inflammation.

Aperients.—Aperients, laxatives, or purgatives are degrees, quantities, or kinds of the same medicines. Laxatives may be classed as milder purgatives, and as acting with less irritation in inflammatory affections. In chronic cases, too, they can be administered more frequently, which is very desirable. Calomel, with small doses of aloes, ranks high among these. The laxatives proper in fever are Epsom, Glauber, or Cheltenham salts, 8 to 12 ounces, dissolved in thin gruel, and repeated every six hours until they operate. In some cases, the bowels being inflamed, 6 to 8 ounces of castor or linseed oil, with a few ounces of the watery tincture of aloes, will prove excellent; it is improved by half a drachm of chloroform. The action of these is much assisted by bran mash, gruel, and diluent drinks.

Some aperients act solely by exciting the muscular coat of the bowels to contract; others cause a copious watery discharge; whilst a third class combine the action of the two. The several purges also act upon different parts of the digestive canal; some stimulating the larger bowels, while others act upon the small intestines; and others, again, on the whole canal. There is yet another class, that combine with purging an influence on the liver, such as mercury and rhubarb; which is effected by absorption with the circulation. Drastic purges are the violent extreme of the scale, as laxatives are the mildest of aperients. As these medicines will receive full notice in the medical treatment of diseases, we shall spare space here by referring to the article specially bearing on the subject, where it will be found fully considered. Some of the most useful aperient formulæ are subjoined:—

Aperient Recipes.

(A) ORDINARY APERIENT, OR “PHYSIC” BALL.

Barbadoes aloes	.	.	.	3 to 8 drachms.
Hard soap	.	.	.	4 drachms.
Ginger	.	.	.	1 drachm.

Dissolve in as small a quantity of boiling water as will suffice; then slowly evaporate to the proper consistence, by which means griping is avoided.

(B) A WARMER APERIENT BALL.

Barbadoes aloes	. . .	3 to 8 drachms.
Carbonate of soda	. . .	$\frac{1}{2}$ drachm.
Aromatic powder	. . .	1 drachm.
Oil of caraway	. . .	12 drops.

Dissolve as above, and then add the oil.

(C) GENTLY LAXATIVE BALL.

Barbadoes aloes	. . .	3 to 5 drachms.
Rhubarb powder	. . .	1 to 2 drachms.
Ginger	. . .	2 drachms.
Oil of caraway	. . .	15 drops.

Mix, and form into a ball as in letter (A).

(D) PURGING BALLS, WITH CALOMEL.

Barbadoes aloes	. . .	3 to 6 drachms.
Calomel	. . .	$\frac{1}{2}$ to 1 drachm.
Rhubarb	. . .	1 to 2 drachms.
Ginger	. . .	$\frac{1}{2}$ to 1 drachm.
Castile soap	. . .	2 drachms.

Mix as in first prescription (A).

(E) STOMACHIC LAXATIVE BALL.

Barbadoes aloes	. . .	3 drachms.
Rhubarb	. . .	2 drachms.
Ginger and cascarrilla powder, of each	. . .	1 drachm.
Oil of caraway.	. . .	15 drops.
Carbonate of soda	. . .	$1\frac{1}{2}$ drachm.

Dissolve the aloes as in (A), and then add the other ingredients.

(F) LAXATIVE DRENCH.

Barbadoes aloes	. . .	3 to 4 drachms.
Canella alba	. . .	1 to 2 drachms.
Salt of tartar	. . .	1 drachm.
Mint water	. . .	8 ounces.

Mix.

(G) ANOTHER LAXATIVE DRENCH.

Castor oil	3 to 6 ounces.
Barbadoes aloes	3 to 5 drachms.
Carbonate of soda	2 drachms.
Mint water	8 ounces.

Mix, by dissolving the aloes in the mint water by the aid of heat, and then adding the other ingredients.

(H) A MILD OPENING DRENCH.

Castor oil	4 ounces.
Epsom salts	3 to 5 ounces.
Gruel	2 pints.

Mix.

(I) A VERY MILD LAXATIVE.

Castor oil and linseed oil, of each	4 ounces.
Warm water, or gruel	1 pint.

Mix.

(K) USED IN THE STAGGERS.

Barbadoes aloes	6 drachms.
Common salt	6 ounces.
Flour of mustard	1 ounce.
Water	2 pints.

Mix.

(L) A GENTLY COOLING DRENCH IN SLIGHT ATTACKS OF COLD.

Epsom salts	6 to 8 ounces.
Whey	2 pints.

Mix.

(M) PURGATIVE CLYSTER.

Common salt	4 to 8 ounces.
Warm water	8 to 16 pints

Arnica has for a time disappeared from our prescriptions and practice, to reappear recently with good claim on our notice. It is diaphoretic and diuretic, and we have found

the root in powder (20 grains three times a day), or the infusion (3 drachms of flowers and leaves and 1 pint of boiling water), given four ounces at a time, a good stimulant. It is now applied by homœopathic doctors to wounds and bruises; with what effect it could be introduced in horse practice we cannot at present with certainty say.

Astringents.—These are supposed to act on the living fibres by producing increased contraction, in which point of view they form a very numerous and important class; but in a more limited sense, they are considered as substances that restrain immoderate fluxes, as of the intestines and kidneys. Those that act by constringing the divided ends of blood-vessels are called styptics. Opium, chalk, alum, starch, and catechu act favourably in restraining intestinal fluxes. Catechu, alum, and acetate of lead operate as astringents on the urinary passages.

Astringent Recipes.

(A) FOR DIABETES.

Opium	.	.	.	.	.	$\frac{1}{2}$ drachm.
Powdered ginger	.	.	.	.	.	2 drachms.
Oak bark	.	.	.	.	.	1 ounce.
Camomile infusion	.	.	.	.	.	1 pint.

Mix for a drench; or, if powdered oak bark omitted substitute alum, as much as the tea will dissolve.

(B) FOR BLOODY URINE.

Catechu, powdered	.	.	.	.	.	1 ounce.
Cascarilla bark	.	.	.	.	.	2 drachms.
Alum	.	.	.	.	.	1 ounce.

Liquorice powder and treacle to form a ball, administered twice a day.

(C) EXTERNAL POWDER FOR ULCERS.

Alum, powdered	.	.	.	.	.	4 ounces.
Bole Armenian	.	.	.	.	.	1 ounce.
Mix.						

(D) Or,

White vitriol	.	.	.	.	.	4 ounces.
Oxide of zinc	.	.	.	.	.	1 ounce.
Mix.						

(E) AN ASTRINGENT LOTION.

Goulard's Extract	.	.	.	.	3 drachms.
Water	.	.	.	.	$\frac{1}{2}$ pint.

(F) ASTRINGENT OINTMENT.

Super-acetate of lead	.	.	.	1 drachm.
Lard	.	.	.	1 ounce.
Mix.				

(G) Or, for the same purpose :

Nitrate of silver, in powder	.	.	$\frac{1}{2}$ drachm.
Goulard's Extract	.	.	1 drachm.
Lard	.	.	1 ounce.
Mix.	(F) and (G) are good for sore heels.		

Balls.—This is the favourite and most convenient mode of administering horse medicines.

There are some circumstances, in the preparation of this form of medicines, not in general sufficiently attended to by veterinarians. Substances that are volatile do not keep well in balls, and therefore should only be made when used. The same caution is also requisite with such as liquefy by the absorption of air. All hard substances entering into balls should be finely powdered, and the moist matter that is to form them into an adhesive mass should be of a nature that will not soon ferment or become mouldy. Hence they are better compounded with oil than with honey or syrup. A mass for balls should be pressed down in a jar, and covered with a bladder. Balls should not weigh more than an ounce and a half or two ounces, or they will pass down the gullet with difficulty ; nor more than an inch in diameter, and three inches in length. The mode of "delivering a ball" is not difficult to acquire ; and the balling iron, while it often wounds and permanently injures the bars, occasions the horse to struggle more than he otherwise would against the administration of the ball. The horse should be backed in the stall ; the tongue should be drawn gently out with the left hand on the off side of the mouth, and there fixed, not by continuing to pull at it, but by pressing the fingers against the side of the lower

jaw. The ball, being now taken between the tips of the fingers of the right hand, is passed rapidly up the mouth, as near to the palate as possible, until it reaches the root of the tongue; it is then delivered with a slight jerk, and the hand being immediately withdrawn and the tongue liberated, the ball is forced through the pharynx into the œsophagus. Its passage should be watched down the left side of the throat; and if it is not seen going down, a slight tap or blow under the chin will generally cause the horse to swallow, or a few gulps of water will carry it down. If the gullet should be small, or strictured, and the ball should remain in some part of it, the tube used for "the hove" in cattle may be employed to remove it.

Blisters.—The *modus operandi* and the application of blisters will be found under *Operations* hereafter. The leading substance is the *Cantharides*, or Spanish fly, though various substances are used for the purpose of vesication. As a simple blister, none equals in certainty and mildness the Spanish fly. In acute inflammatory disorders, however, its action is too slow, and caustic liquor of ammonia is resorted to; euphorbium is also introduced as a substitute for cantharides. The tincture of croton is also used as an economical substitute for the flies.

(A) BLISTER FOR GENERAL USE.

Powdered cantharides	. . . . .	1 pound.
Lard	. . . . .	8 pounds.

The liquid blister is made by substituting eight pints of oil for the eight pounds of lard, and allowing the flies to digest for a fortnight, or boiling them in a water bath. A pound of camphor is a good addition; it does not lessen the action of the blister, but diminishes its irritation.

(B) A POWERFUL BLISTER.

Spanish flies	. . . . .	1 pound.
Lard	. . . . .	3 pounds.
Resin	. . . . .	2 pounds.
Oil of turpentine	. . . . .	1 pound.

Melt the resin with the lard, after which add the turpentine. When beginning to cool, throw in the powdered flies.

- (C) A MERCURIAL BLISTER, WHICH MAY BE USED WHERE DEPENDENCE IS PLACED ON THE ACTION OF MERCURIALS AND BLISTERS.

Of the former blister 4 ounces.
Corrosive sublimate, powdered finely 1 scruple.

(D) Or the following :

Strong mercurial ointment . . . 2 ounces.
Oil of origanum 2 drachms.
Corrosive sublimate 2 drachms.
Cantharides, powdered 3 drachms.
Mix, and rub in with the hand.

- (E) STRONG SWEATING BLISTER, FOR SPLENTS, RING-BONE, SPAVINS, ETC.

Of the liquid blister marked (F) . 1 pint.
Biniodide of mercury 2 drachms.

To be well rubbed in the legs after cutting the hair short; and followed by the daily use of arnica, in the shape of a wash, as follows, which is to be painted on with a brush :

Tincture of arnica 1 ounce.
Water 12 to 15 ounces.
Mix.

- (F) LIQUID BLISTER, WEAK ; SOMETIMES CALLED SWEATING BLISTER.

Spanish flies, in gross powder . . . $\frac{1}{2}$ pound.
Olive oil 3 quarts.

Steep the flies in the oil three weeks; strain off, and bottle for use.

(G) LIQUID BLISTER, VERY MILD.

Of the above 1 pint.
Olive oil $1\frac{1}{2}$ pint.

The farrier's *sweating blister* is only a strong stimulant; it occasions heat and swelling, without excoriation or loss of hair; consequently it is a very convenient application, when it is an object to avoid a temporary blemish, and

when the case is not of a very desperate description. But there are also instances in which it is to be preferred to an actual blister, as in strains, where some remains of heat and inflammation are present, but without activity; in such cases the sweating blister is very often efficacious. The mode of application is to rub it in of sufficient strength to irritate in a mild degree only; repeating it every day, until considerable swelling is occasioned, when the application should cease and the enlargement be allowed to subside.

Caustics, called in medicine *escharotics*, are external remedies applied by cloth, brush, or sponge to the part where fungous excrescence is to be destroyed, or indolent ulceration stimulated to granulation. They are of two kinds, viz., first, the actual cautery, consisting in the application of the hot iron, and called firing, which will come under notice elsewhere; and secondly, the potential cautery, by means of the powers of mineral caustics, such as potass, lunar caustic, etc.

The *Mineral Acids* are active caustics. Sulphuric acid, or "oil of vitriol," is now seldom used. Nitrous acid (*Aqua Fortis*) may be applied by means of a camel's-hair pencil to fungus on the foot.

The *Chloride* or *Muriate of Antimony*, commonly called the *butter of antimony*, is a caustic in very general use in veterinary practice. Applied to a raw surface it instantly changes it white, destroying a thin layer of substance; hence it is a very convenient application in cankered feet, as, by means of a small camel's-hair brush, it can be spread over as much or as little a portion of parts as is necessary. In sanderack, when the sensitive substance protrudes, it may be applied in a similar way. In obstinate cases of grease, the buds are sometimes beneficially touched with it, but in quittor, poll-evil, and other sinuses, it is not so proper as some other escharotics.

Nitrate of Silver (*Argenti Nitras*), popularly called "lunar caustic," is a preparation from silver, which renders it expensive: it is, however, essentially necessary to the veterinarian's dispensary, from its being so completely under command in its actions; not extending its effects beyond the immediate part it is applied to. It proves the most convenient caustic for destroying the edges of a contaminated wound, when not too extensive, as the bite of a rabid animal. Dissolved in five, six, or eight times its own weight

of water, it forms an excellent liquid caustic, peculiarly useful as a dressing for the foot-rot in sheep, and also to touch the protruded portions in sanderack. Dissolved in twenty times its weight of water, it makes a useful detergent wash for foul ulcers, and to keep down too luxuriant growths.

Lunar caustic consists of seventy parts of oxide of silver and thirty of nitric acid; when fused and cooled it is in small cylinders of a dark grey colour, and of a crystalline fracture when broken across. The sticks should be kept in a stoppered bottle covered with soft dry paper.

Caustic Potass, called *Fluid Potass* (*Potassa Fusa*), is powerful, but difficult to manage, as it runs about where it is not wanted. Mixed with soap, it has been injected in the pipes of quittor.

Blue Vitriol, the sulphate of copper, is a much milder caustic than several others, and is used in powder, to destroy fungus, especially in cases of broken knee. A solution of one drachm to six ounces of water is a detergent wash for ulcers, grease, etc.

White Vitriol (Sulphate of Zinc) is also a good escharotic in a saturated solution. (See *Zinc*.)

Corrosive Sublimate (*Oxmuriate of Mercury*). (See *Mercury*.) In powder it acts most energetically upon warty growths, but should be used with great care and discretion. It may safely be applied to small surfaces, but not without a regular practitioner to large ones. It should be washed off after remaining on a few minutes.

The *Nitrous Oxide of Mercury*, called "red precipitate," is also generally used for similar purposes.

Yellow Orpiment, not so strong as the corrosive sublimate, and may be used with more freedom. It will generally remove warty growths by picking off their heads and rubbing it in.

Caustic Preparations.

(A) IN CANKER OF THE FOOT.

Quicksilver	.	.	.	.	.	1 ounce.
Nitric acid	.	.	.	.	.	2 ounces.

Mix in an earthen vessel, and when cold put into a wide glass bottle, and cork it. It may be mixed with lard, in the proportion of 1 to 3.

(B) A SIMILAR APPLICATION, WHICH MAY BE USED
ALTERNATELY WITH THE LAST.

Copper filings	$\frac{1}{2}$ ounce.
Nitric acid	1 ounce.

Mix and use in the same way.

Mild Solid Caustics.—Verdigris, either in powder or mixed with lard as an ointment, in the proportion of 1 to 3. Burnt alum, used dry. Powdered white sugar.

Mild Liquid Caustics.—Solution of nitrate of silver, 5 to 15 grains to the ounce of distilled water. Solution of blue vitriol, of about double the above strength. Chloride of zinc, 3 grains to the ounce of water.

Quicklime, sprinkled over ulcerated surfaces, is a convenient escharotic.

Charges.—Thick adhesive plasters spread over parts that have been strained or weakened; they are applied warm, and left on while adherent. Charges are not much used by modern veterinarians, a more extensive acquaintance with the animal economy teaching us that there is but little activity in what are considered as external bracers. Nevertheless, there are some other points of view in which we may place this matter, to prove that “charges” may be of much service in some cases, if it is merely to act as a bandage, or to protect from cold. In this way a “charge” becomes a useful application to the loins in rheumatism; not only as it protects the affected part from cold, but also because of the resin proving a useful stimulant. Any strong adhesive, as resin, pitch, etc., melted with wax or oil sufficient to keep it from being too brittle, may be formed into a “charge,” and applied warm on the part; and as it cools it should be covered with flocks of wool or short tow. Another favourite and effective “charge” in ligamentary lameness consists of common salt with the white of egg.

The following mixture makes a good charge :

Burgundy or common pitch	5 ounces.
Tar	6 ounces.
Yellow wax	1 ounce.

Melted together, and when they are becoming cool, half a drachm of powdered cantharides well stirred in. This must be partially melted afresh when applied, and put on the

part with a large spatula, as hot as it can be without giving the animal too much pain. Flocks of tow should be scattered over it while it is warm, and thus a thick and adhesive covering will be formed, which cannot be separated from the skin for many months. This is applied for old sprains of the loins, and also strains of the back sinews.

A newly-introduced charge is called the *Arnica charge*. It is formed of two ounces of Canada balsam, and half an ounce of arnica leaves, melted and worked together with a little spirits of turpentine. This is to be applied over the whole by thinly spreading, and then the first-named charge placed outside and over it.

Clysters—in many farming books *glysters*—are useful aids in veterinary practice, being always safe and easy to administer. The principal part is to avoid alarming the horse. The syringe known as “Read’s,” with valves and a flexible tube, is the best apparatus; but failing this, a large hog’s bladder, or, better, that of an ox, with a smooth wooden pipe an inch in diameter and sixteen inches long, may serve the occasion. The pipe must be well oiled, and the process conducted gently. We may notice here that *Back-raking* is an operation often necessary before throwing up a clyster. The clyster must not be suddenly forced up, but gradually, and its heat 96° Fahrenheit. Subjoined are several of the compounds ordinarily used as clysters, from which it will be seen that the clyster may be made not only laxative, but nutritious and astringent. From the urgency with which relief of the bowels is required, and the length of time taken by purgatives given by the mouth, this class of remedy is invaluable.

(A) A LAXATIVE CLYSTER.

Thin gruel or broth	5 quarts.
Epsom salts, $\frac{1}{2}$ lb.; or common salt	1 $\frac{1}{2}$ pound.

(B) A CLYSTER FOR GRIPES.

Oil of turpentine	$\frac{1}{2}$ pint.
Thin gruel	4 quarts.

(C) ANODYNE CLYSTER IN DIARRHŒA.

Starch, made as for household pur-

poses 1 quart.

Powdered opium 2 drachms

The opium to be boiled in water, and added to the starch.

(D) A NOURISHING CLYSTER.

Thick gruel 3 quarts.

Strong ale 1 quart.

Mix. Or,

Strong ale 1 quart.

Thick milk 2 quarts.

Mix.

(E) ASTRINGENT CLYSTERS.

Boiled milk 3 pints.

Thin starch 2 pints.

Laudanum 1 ounce.

(F) Another.

Alum whey 1 quart.

Boiled starch 1 quart.

Cordials (see *Stimulants*) are mixtures or simples that invigorate by their stimulating property, usually through the medium of the stomach. Cordials have been so long the very stronghold of the ignorant and presuming that the very term sounds ill in the ear of the well-informed veterinarian. A horse, unlike a gin-drinking groom, has an undebauched stomach, and does not require a cordial ball twice a week, nor on every evening after hunting, nor on every morning his coat stares with the altered temperature. To the animal a cordial, as being unnatural, must be hurtful, unless required by some very extraordinary exertion, which, by calling forth too much of the constitutional powers, has expended the vital resources whence the stomach draws its tone. Thus, after a very hard run with hounds, this may happen, and then a gentle stimulant may excite the digestive system artificially. Here a cordial may be proper and even necessary. A good

one can, under such circumstances, be administered as follows :—

(A) CORDIAL DRENCH.

Sulphuric ether	.	.	.	.	1 ounce.
Laudanum	.	.	.	.	$\frac{1}{2}$ ounce.
Cold water	.	.	.	.	1 pint.
Mix.					

To recall the appetite of the horse slowly recovering from illness, a cordial may sometimes be allowed ; or to old horses that have been worked hard and used to these excitements when young ; or to draught horses that have exhibited slight symptoms of staggers, when their labour has been unusually protracted and their stomachs left too long empty ; or, mixed with diuretic medicine, to fine the legs of the overworked and debilitated animal ; otherwise they should never find a place in the stable, or be used at the discretion of the carter or the groom. The common cordial ball may be thus compounded :

(B) CORDIAL BALL.

Pounded caraway seeds	.	.	.	3 drachms.
Ginger	.	.	.	2 drachms.
Oil of cloves	.	.	.	20 drops.
Treacle to make a ball.				

(C) Another Cordial Ball.

Powdered aniseed	.	.	.	6 drachms.
Caraways	.	.	.	6 drachms.
Cassia	.	.	.	2 drachms.

Mix with treacle for a ball. Should catarrh be present, add powdered squills (2 drachms), and use balsam of tolu with the treacle.

A quart of good sound ale, with some grated ginger, almost everywhere procurable, is often the best available drench in an emergency.

Demulcents. — Medicines that act mechanically, by surrounding acrid matter, and sheathing it from hurting sensitive and irritable parts. For this purpose oily

(B) Another.

Antimonial powder	2 drachms.
Ginger	2 drachms.
Caraway seeds	1 ounce.
Oil of aniseed	20 drops.
Mix with linseed meal and boiling water for a ball.	

Digestives, in veterinary practice, are stimulant applications, producing a tendency to suppuration. The gum resins are at the head of this class, and the turpentine, myrrh, aloes, resin, tar, etc., are digestive.

(A) COMMON DIGESTIVE OINTMENT.

Red precipitate.	3 ounces.
Venice turpentine	3 ounces.
Bees' wax	1 ounce.
Hog's lard	4 ounces.

Melt the three last ingredients over a slow fire, and when nearly cold stir in the powder.

Disinfectants.—These have, of late years, come prominently into notice. The foremost of these are the chloride of lime and the chloride of zinc. They are most important in cases of glanders in stables. An ounce of the chloride of zinc in two gallons of water is a sufficient strength, and of the chloride of lime one-tenth of powder to nine times its bulk of water is a fair solution.

Diuretics.—Medicines which increase the secretion of urine from the blood, thus depriving it of a large proportion of its watery particles, and enabling the absorbents to take up more water from the system. Some diuretics act directly upon the kidneys by sympathy with the stomach, while others are taken up by the blood-vessels, and in their elimination from the blood cause an extra secretion of the urine. In either case their effect is to diminish the watery part of the blood, and thus promote the absorption of fluid effused into any of the cavities, or into the cellular membrane, in the various forms of dropsy. They are a much-abused class of medicines, from their indiscriminate administration by the groom and farrier. Turpentine and nitre, which see, are the leading diuretics in horse medicine.

(A) STIMULATING DIURETIC BALL.

Powdered resin	3 drachms.
Fused nitre (sal prunella)	3 drachms.
Castile soap	3 drachms.
Oil of juniper	1 drachm.

Mix.

(B) COMMON DIURETIC BALL.

Powdered nitre	1 ounce.
Camphor	1 drachm.
Oil of juniper	1 drachm.

Linseed meal to form a mass.

(C) DIURETIC POWDER FOR A MASH.

Fused nitre (sal prunella)	$\frac{1}{2}$ to $\frac{3}{4}$ ounce.
Resin	$\frac{1}{2}$ to $\frac{3}{4}$ ounce.

Mix.

(D) Another more Active Powder.

Fused nitre	6 drachms.
Camphor	$1\frac{1}{2}$ drachm.

Mix.

Drinks or Drenches.—Many practitioners and horse proprietors have a great objection to the administration of medicine in the form of drinks. A drink is not so portable as a ball, it is more troublesome to give, and a portion of it is usually wasted. If the drink contains any acrid substance, it is apt to excoriate the mouth or to irritate the throat already sore from disease, or the unpleasant taste of the drug may unnecessarily nauseate the horse. There are some medicines, however, which must be given in the form of drink, as in colic; and the time, perhaps, is not distant when purgatives will be thus administered, as more speedy and safer in their operation. In cases of much debility and entire loss of appetite, all medicine should be given in solution, for the stomach may not have sufficient power to dissolve the paper in which the ball is wrapped, or the substance of the ball.

An ox's horn, the larger end being cut slantingly, is the usual and best instrument for administering drinks. The

common method is thus described by Blaine: "The noose of a halter is introduced into the mouth, and then, by means of a stable fork, the head is elevated by an assistant considerably higher than for the delivery of a ball. The operator stands on a pail or stool on the off side of the horse, and draws out the tongue with the left hand; he then, with the right hand, introduces the horn gently into the mouth, and over the tongue, and by a dexterous turn of the horn empties the whole of the drink into the back part of the mouth; the horn is now quickly withdrawn and the tongue loosened, when the greater portion of the fluid must be swallowed. A portion of it, however, will often be obstinately held in the mouth for a long time, and the head must be kept up until the whole is swallowed, which a quick, but not violent, slap in the muzzle will generally compel the horse to do. The art of giving a drink consists in not putting too much into the horn at once; introducing the horn far enough into the mouth, and quickly turning and withdrawing it, without bruising or wounding the mouth, the tongue being loosened at the same moment. A bottle is a disgraceful and dangerous instrument to use."

Embrocations.—External remedies applied by hand, friction, cloth, or brush. The following are the leading formulæ. We may as well note that the various oils are retained; there is none of them, however, which may not be dispensed with, if the turpentine and olive oil are retained and proportionally increased in quantity. The "oils" are mere traditions of a superstitious and ignorant period.

Embrocations.

(A) STIMULATING EMBROCATION.

Camphor	$\frac{1}{2}$ ounce.
Oil of turpentine	$1\frac{1}{2}$ ounce.
Spirit of wine	$1\frac{1}{2}$ ounce.
Mix.	

(B) SWEATING EMBROCATION FOR WIND-GALLS, ETC.

Strong mercurial ointment	2 ounces.
Camphor	$\frac{1}{2}$ ounce.
Oil of rosemary	2 drachms.
Oil of turpentine	1 ounce.
Mix.	

(C) Another, stronger.

Strong mercurial ointment	. . . . .	2 ounces.
Oil of bay	. . . . .	1 ounce.
Oil of origanum	. . . . .	$\frac{1}{2}$ ounce.
Powdered cantharides	. . . . .	$\frac{1}{2}$ ounce.

Mix.

(D) STRONG SWEATING EMBROCATION.

Biniodide of mercury	. . . . .	$\frac{1}{2}$ to 1 drachm.
Powdered arnica leaves	. . . . .	1 drachm.
Soap liniment	. . . . .	2 ounces.

Mix.

(E) MUSTARD EMBROCATION.

Best flour of mustard	. . . . .	6 ounces.
Liquor of ammonia	. . . . .	$1\frac{1}{2}$ ounce.
Oil of turpentine	. . . . .	$1\frac{1}{2}$ ounce.

Mix with sufficient water to form a thin paste.

Emetic Tartar (see *Antimony*).

Emetics are not used in horse medicines, for reasons explained in the anatomical part of this work.

Emulsions are serviceable in chronic cough. The following is a

(A) SIMPLE EMULSION.

Honey	. . . . .	3 ounces.
Linseed oil	. . . . .	3 ounces.
Subcarbonate of potass	. . . . .	1 drachm.
Boiled water	. . . . .	1 pint.

Melt the potass and honey in the water; then add the linseed oil gradually, working it well in till a smooth milky mixture is obtained. A fourth part thrice a day.

(B) Another, more active.

Of the former emulsion	. . . . .	1 pint.
Camphor and opium, in powder, each	$\frac{1}{2}$ drachm.	
Oil of aniseed	. . . . .	20 drops.

Mix the camphor and opium with some white sugar in a mortar, dropping in the oil, then add the emulsion gradually, beating up as before.

Expectorants.—These are medicines which assist the removal of irritating mucus, formed in the windpipe and bronchial tubes. Squills, with honey and vinegar, are the leading articles in this class. True, the horse does not expectorate, as we understand it, but the secretion can be increased by these medicines, and he will cough out the mucus ; this is relief.

(A) EXPECTORANT BALL.

Powdered squill	. . . . .	1 drachm.
Gum acacia	. . . . .	1 ounce.
Castile soap	. . . . .	$\frac{1}{2}$ ounce.
Honey or treacle to form a ball.		

(B) Another.

Gum asafœtida	. . . . .	2 drachms.
Carbonate of ammonia	. . . . .	$\frac{1}{2}$ drachm.
Gum acacia	. . . . .	1 drachm.
Ginger	. . . . .	1 drachm.
Honey to form a ball.		

(C) A POWERFUL EXPECTORANT BALL.

Calomel	. . . . .	10 grains.
Digitalis	. . . . .	$\frac{1}{2}$ drachm.
Emetic tartar	. . . . .	$\frac{1}{2}$ drachm.
Powdered squills	. . . . .	1 drachm.

Linseed meal and treacle to form a ball. The result to be watched carefully before giving another dose.

Febrifuges.—Namely, fever medicines—act by increasing the secretion of urine and perspiration, and by moderating the action of the heart and the irritability of the circulatory system.

(A) FEVER BALL.

Nitre	. . . . .	4 drachms.
Camphor	. . . . .	$1\frac{1}{2}$ drachm.
Calomel and opium	. . . . .	of each 1 scruple.
Linseed meal and water enough to form a ball.		

(B) Another Fever Ball.

Emetic tartar	1½ to 2 drachms
Powdered acacia gum	2 drachms.
Linseed meal as above.	

(C) COOLING DRENCH.

Nitre	1 ounce.
Sweet spirit of nitre	2 ounces.
Tincture of digitalis	2 drachms.
Whey	1 pint.

(D) COOLING MASH.

Nitre	1 ounce.
May be given in a bran mash.	

Fomentations.—These open the pores of the skin and promote perspiration in the part, and so abate the local swelling, and relieve pain and lessen inflammation. They are often used, and with more effect, when the inflammation is somewhat deeply seated, than when it is superficial. The effect depends on the warmth of the water, and not on any herb which may have been boiled in it. They are best applied by means of flannel frequently dipped in the hot water, or on which the water is poured, and the heat should be as great as the hand will bear. The benefit that might be derived from them is much impaired by the absurd method in which the fomentations are conducted. They are rarely continued long enough, and when they are removed the part is left exposed and wet, so that the cold of evaporation often does more harm than the warmth of the fomentation does good. Blaine says—and we think the hint valuable—he, in many cases, fomented first and then applied a poultice or liniment.

Gruel.—An article of great importance in veterinary practice ; care should, therefore, be paid to its preparation. It must be thick when intended as a cordial or for nourishment ; if as a diluent, it can hardly be too thin. Above all things, let it be prepared in scrupulously clean vessels, and never smoked. A horse that has had smoky gruel offered to him will with difficulty again be induced to taste it.

Bran with boiling water poured upon it, allowed to get cold and strained, is an excellent diluent.

Infusions.—These are watery solutions of vegetable matters, obtained by macerating the substance either in hot or cold water, without boiling on the fire. Where volatile oil is the active principle, cold infusion is necessary; where mucilage, or astringent principle, warmth is requisite.

The active matter of some vegetable substances is partly or entirely extracted by water. Dried vegetables yield their properties more readily and perfectly than when in their green state. Boiling water is poured on the substance to be infused, which has been previously grossly pounded or powdered, the vessel is then covered and placed by a fire. In five or six hours the transparent part may be poured off, and is ready for use. In a few days, however, all infusions become thick and lose their virtue, from the decomposition of the vegetable matter.

The infusion of camomile is used instead of water in mild tonic drenches; the infusion of gentian is a fine stomachic; so is the infusion of catechu in astringent mixtures; the infusion of linseed for catarrh; and in some injections tobacco-water—the infusion of tobacco.

Liniments.—Preparations of intermediate consistency between ointments and oils. They are intended either to soothe an inflamed surface or, by gently stimulating the skin, to remove deeper-seated pain or inflammation. As an emollient liniment, one composed of half an ounce of extract of lead and four ounces of olive oil will be useful. For sprains, old swellings, or rheumatism, two ounces of hartshorn, the same quantity of camphorated spirit, an ounce of oil of turpentine, half an ounce of laudanum, and a drachm of oil of origanum, may be mixed together; or an ounce of camphor may be dissolved in four ounces of sweet oil, to which an ounce of oil of turpentine and a drachm of oil of origanum should be afterwards added. A little powdered cantharides, or tincture of cantharides, or mustard powder will render either of these more powerful, or convert it into a liquor blister.

Soap Liniment, commonly known under the name of *Opodeldoc*, consists of hard soap, 1 ounce; camphor, 3 drachms; oil of rosemary, 20 drops; oil of origanum, 10 drops; solution of ammonia, 6 drachms. This is the

renowned Steer's Opodeldoc. A cheaper and simpler liniment will do as well.

Lotions.—These are synonymous with washes, and are noticed under the several ingredients which go to their formation, as copper, zinc, lead, ammonia, acetic acid, etc. The common lotions in use are :

(A) LOTION FOR EXTERNAL INFLAMMATION.

Goulard's Extract	1 ounce.
Acetic acid (vinegar)	2 ounces.
Spirits of wine, or gin	4 ounces.
Water	1 quart.

Mix, and apply with a calico bandage.

(B) LOTION FOR INFLAMED LEGS, OR GALLED BACK.

Sal ammoniac	1 ounce.
Vinegar	4 ounces.
Spirits of wine	2 ounces.
Tincture of arnica	2 drachms.
Water	$\frac{1}{2}$ pint.

Mix.

(C) LOTION FOR FOUL ULCERS.

Sulphate of copper	1 ounce.
Nitric acid	$\frac{1}{2}$ ounce.
Water	8 to 12 ounces.

Mix.

Mashes. — A leading article in stable economy, and justly so. A mash given occasionally to a horse that is otherwise fed on dry meat prevents him from becoming dangerously costive. To the overworked and tired horse nothing is so refreshing as a warm mash with his usual allowance of corn in it. The art of getting a horse into apparent condition for sale, or giving him a round and plump appearance, consists principally in the frequent repetition of mashes; and from their easiness of digestion and the mild nutriment which they afford, as well as their laxative effect, they form the principal diet of the sick horse.

Mashes are made by pouring boiling water on bran, and

stirring it well, and then covering it over until it is sufficiently cool for the horse to eat. If in the heat of summer a cold mash is preferred, it should, nevertheless, be made with hot water, and then suffered to remain until it is cold. This is not always sufficiently attended to by the groom, who is not aware that the efficacy of the mash depends principally on the change which is effected in the bran and the other ingredients by the boiling water rendering them more easy of digestion, as well as aperient. If the horse refuses the mash, a few oats may be sprinkled over it, in order to tempt him to eat it; but if it is previously designed that corn should be given in the mash, it should be scalded with the bran, to soften it and render it more digestible. Bran mashes are very useful preparatives for physic, and they are necessary during the operation of the physic. They very soon become sour, and the manger of the horse of whose diet they form a principal part should be daily and carefully cleaned out.

When horses are weakly and much reduced, *malt mashes* will often be palatable to them, and very nutritive; but the water that is poured on a malt mash should be considerably below the boiling heat, or the malt will be set, or clogged together. If owners were aware of the value of a malt mash, there would be much physic saved. *Speared corn mash*, often talked of, is nothing more than a malt mash.

Poultices, or Cataplasms.—As bread would be expensive, bran is generally used in veterinary practice, which a little linseed meal improves in consistence. This is important, as otherwise the poultice runs through the cloth. Yet it must not be too thick, lest it dry too quickly; and its action is due greatly to its keeping moist. It should, therefore, be frequently wetted from without. In applying poultices to the legs, care should be taken not to tie them too tight, as is frequently done, and whereby the mischief is aggravated instead of relieved; a piece of broad list is, for this reason, very proper to fasten them on with. A poultice should never be applied too hot; very little good can be derived from it, and much pain may be occasioned. A hot poultice soon sinks to the heat of the part. Poultices are likewise, in many cases, applied cold. A convenient mode of applying a poultice to the extremities is by means of an old stocking cut off at the ankle. The leg of it, being slipped over the

hoof, is brought around the part, and secured below by means of broad list. The poultice is then put into the stocking by means of the hand, and afterwards secured above by another piece of broad list. In cases where it is found difficult to keep a poultice on any part of the extremities, from its inclination to slip down, still by no means tighten the supporting bandage; but, instead, pass a long tape from it over the withers, if in front, or back, if behind, and attach it to the other side of the bandage; it will then be effectually secured from slipping. If too tight, it will prevent the return of blood from the foot; if too hot, it will inflict unnecessary pain.

(A) COMMON POULTICE.

Bran, any quantity; pour on it boiling water, to form a thick paste; add linseed meal sufficient to make it adhesive. After this, stir in one or two ounces of sweet oil.

(B) COOLING POULTICE.

Bran, any quantity; pour on it a sufficient quantity of cold water to form a poultice, and as it dries, moisten with more water.

(C) CLEANSING POULTICES IN GENERAL USE FOR GREASE AND ULCEROUS WOUNDS.

Oatmeal	.	.	.	.	.	.	$\frac{1}{2}$ pint.
Linseed meal	.	.	.	.	.	.	$\frac{1}{2}$ pint.
Powdered charcoal	.	.	.	.	.	.	4 ounces.
Stale beer and bran sufficient to make a poultice.							

(D) Or,

Carrots, scraped, sufficient to make a poultice.

(E) Or,

Turnips, boiled and mashed, sufficient to make a poultice.

To either of these last two, four ounces of charcoal may be added, if thought proper. Or,

(F)

Linseed meal, or oatmeal, any quantity; mix with boiling water, and ferment with a tablespoonful of yeast; as it rises, apply to the part.

Powders.—Powdered medicines that have not much taste may be given in a mash. Emetic tartar and digitalis in fever, or calomel or the meal of the nut of croton tiglium as “physic.” The horse, however, often refuses them, and then the mash is wasted. A careful and competent groom will prefer the more certain method of ball or drench.

Sedatives.—This class of medicines is calculated to diminish the irritability of the system, to repress spasmodic action, and to deaden pain. Some sedatives act at first as stimulants, but this stage soon passes off. In some cases they act by enabling the system to resist irritation, in others they numb the nerves and lower the animal system by a narcotic or sleepy effect. In the horse we do not find these medicines act as positive narcotics, as in man; they merely lessen irritability, and check spasmodic action. Digitalis, opium, hellebore, hemlock, belladonna, camphor, and turpentine act as sedatives with the horse; so also, in injuries and consequent fever, does the cold bath. Some irritative states are best met by tonics, as the mineral acids, etc.

Stimulants (see *Cordials*).—Medicines that exert an influence on the system by increasing the power and action of a part; hence they may be considered as very numerous, and the term as of very extensive signification. The following article from Blaine contains a summary of the classification of doses of these medicines. *Local Stimuli* are all such matters as either promote the vascular, the nervous, or the absorbing energies, as friction, rubefacients, blisters, etc. *General Stimuli* act on the sensorium at once, through the medium of the senses; the voice of the hounds stimulates the horse; the exertions of a rival racer will likewise stimulate; and the stallion’s fire is drawn forth by the scent of the mare. *Absorbing Stimulants* are heat, cold, friction, depletion, mercury, etc.

Stomachic Stimulants.—Such may be called cordials as are intended to have a temporary effect on the stomach:

and those may be noted as stomachics whose action is more permanent. Both the one and the other appear to act by a sympathetic effect they excite between the stomach and the brain. Warm, spicy matters possess some efficacy; but, as might be supposed, such cordials (*i.e.* stomachics) appear to act best when they are received into the system at large, as general food, malt, gruel, ale, etc.

(A)

Gentian, powdered	3 ounces.
Ginger, powdered	4 ounces.
Oil of aniseed	$\frac{1}{2}$ ounce.

Make into a mass with lard, honey, treacle, or conserve of roses, and give one ounce for a dose.

(B)

Of the preceding mass	1 ounce.
Gum myrrh	1 drachm.
Balsam of tolu	1 drachm.

(C)

Of the first mass	1 ounce.
Camphor	1 drachm.
Opium	1 drachm.

Either of these may be given as a drink also, by infusing the powders in a pint of ale.

As *Stimulants*, Mr. Vines, in his "Treatise on Glanders," enumerates the following articles: Cantharides, Canella bark, Capsicum berries, Cubebs or Java pepper, Ginger root, Grains of Paradise, Pellitory of Spain; all the different sorts of peppers, as the common black, Cayenne, Chili, long, and white; Pimento, or Allspice; Sweet Flag-root, Winter's bark.

More permanent stomachic stimulants are such as act not only by determining a greater quantity of blood to the stomach, but also by strengthening the muscular tone of that organ, enabling it to act with more energy in its digestive movements. The following formulæ are inserted,

and are proper in cases of convalescence, or recovery from debilitating diseases which have impaired the appetite :

(D)

Powdered canella bark (cinnamon)	. 4 drachms.
Ginger	. 1 drachm.
Sulphate of copper (blue vitriol)	. 1 drachm.
Make into a ball with conserve of roses.	

(E)

Decoction of camomile	. 3 pints.
Watery tincture of aloes	. 1 ounce.
Ginger, in powder	. $\frac{1}{2}$ ounce.
Sulphate of iron (green vitriol)	. $\frac{1}{2}$ ounce.
Mix and divide into four drinks.	

(F)

Gum myrrh	. 2 drachms.
Mustard flour	. 1 drachm.
Canturides	. 5 grains.
Gentian powder	. 4 drachms.
Make into a ball with thin Venice turpentine.	

(G)

Powdered gentian	. 3 drachms.
Powdered quassi	. 3 drachms.
Powdered grains of Paradise	. 3 drachms.
Make into a ball with Venice turpentine.	

Tonic Stimulants are supposed to exert their influence on the muscular fibre, and to improve its tone: this they do, in some instances, through the medium of the stomach, and are then called stomachics; or they are received into the blood. Tonics are, therefore, stimulants of permanent action, from which we may learn that this class is numerous, and is, in fact, diffused through the whole *materia medica*. A complete knowledge of their number and effect can only be gained by an intimate acquaintance with the animal economy and the nature of the various agents employed in acting upon it. Either of the subjoined may be given daily :

(H)

Gum myrrh	2 drachms.
Sulphate of iron (green vitriol)	2 drachms.
Gentian powder	3 drachms.
Ginger powder	1 drachm.

Mix into a ball with turpentine or palm oil, or into a drink with a pint of mild ale.

(I)

Arsenic	4 grains.
Gentian, powdered	3 drachms.
Cascarilla, powdered	3 drachms.

Mix into a ball with conserve of roses; or, like the above, into a drink.

(K)

Gum myrrh	3 drachms.
Powdered gentian	3 drachms.
Carbonate of iron	2 drachms.

Make into a ball.

As *Tonics*, Mr. Vines also enumerates Angostura bark, Buckbean, Cascarilla bark, Camomile flowers, Gentian root, Quassia wood.

Stoppings.—An important point in stable management. When a horse's work is irregular and he stands in stable too long, his feet are deprived of moisture, and the hoofs become hard and brittle, and have a tendency to corns, contraction, and founder. In cases of wounds or bruises on the sole, stoppings are yet more necessary. Clay is a bad stopping. It dries soon, and adds to the evil it is intended to remedy; the addition of three parts of cow-dung to the clay will correct this. In wounds, a little tar is a good addition: but tar, as a general stopping, is too stimulant and drying. Oil of turpentine, one part; firm grease, two parts; and pledgets of tow dipped in it, bound on with withy strips and list, make an extemporaneous stopping. There are now, however, easily procurable thick felt pads made for the purpose, which fit to the sole of the foot;

these being passed within the shoe, and well wetted with water or cold lotion, swell, and thus are kept in their place by the shoe itself, and will retain their moisture throughout the night. Or, in case of prick of the foot, wet the pad liberally with chloride of zinc lotion to keep down inflammation. A good general stopping for keeping down fever of the feet, suppling the hoof, and rendering it tough, may be made of—

Linseed meal	. . . . .	4 parts.
Tar	. . . . .	1 part.
Sulphate of zinc (white vitriol)	. . . . .	$\frac{1}{2}$ ounce.

Styptics.—Such remedies as check bleeding internally or externally. Those used internally are: Acetate of lead, sulphate of zinc, catechu (terra Japonica), alum; externally, pressure, ligature, division of the blood-vessel, cold, the actual cautery, cobweb, felt, down, oak-galls, powdered alum, or any substance or fluid that has the property of rapidly coagulating the serum.

Dr. Paris has some judicious observations on Styptics, especially as regards the horse and ass. He says: "The manner in which styptics act (on the human subject) is sufficiently shown by the pallor they at once produce on the lips, in consequence of the blood-vessels becoming diminished in diameter, and their coats increased in opacity. Great popular error, however, still exists as regards these local agents, which has arisen from deductions drawn from their effects upon lower animals. Thus several substances have obtained the reputation of Styptics from the marked result which has followed their application to the wounded and bleeding vessels in the extremities of the horse and ass; whereas the fact is that to these animals Nature has supplied an inherent power of contraction which does not exist in man. Hence Styptics are of powerful action on the horse." Several Styptics have, at times, been held in high esteem, but galls, dissolved in spirit or simple gallic acid, will be found as good as any. Filings of iron, tartar, and a little brandy form the favourite Styptic of French and German practitioners, under the name of Helvetius's Styptic. Eaton's Styptic, well known here, is merely sulphate of iron and brandy, and Ruspini's Styptic is gallic acid, brandy, and rose water. The application of a hot

iron, not quite so hot as to utterly destroy the animal tissues, will be found by coagulating the serous portions of the blood, and exciting the peculiar contractility of the blood-vessels of the horse, to check, and eventually stop, the loss of blood from severe wounds, and allow time for further remedial measures.

Sudorifics (see *Diaphoretics*).—A relaxation of the skin is produced in the horse by warmth, diluents, and diaphoretic medicines. A real sweat, however, is seldom excited without violent nauseants, and these are very uncertain in their action. Vinegar in half-pint doses will act as a sudorific, but is dangerous. A greater amount of clothing is preferable, but is very debilitating. Antimonials, as the acetated liquor of ammonia, will act as sudorifics in many cases.

Tinctures.—Many substances yield readily their medicinal properties to alcohol or spirit of wine. The tinctures, however, frequently require so much spirit to contain the dose necessary for the horse as to make them impossible to be administered in this form, to say nothing of the great expense. The spirit necessary as a vehicle for the drug has destroyed many a horse. Watery solutions, or infusions, or powder, are therefore more available. As lotions, tinctures of cantharides, benzoin, myrrh, digitalis, aloes, and opium are properly used. Tincture of catechu is an ingredient in astringent drinks.

A few of the tinctures kept ready compounded in the shops, or sold as patent medicines, may be mentioned here. *Friar's Balsam*—this is composed of gum benzoin, styrax, and tolu, with aloes. It is a moderately good internal remedy, diluted with water, to effect which it must be beaten up with starch or the yolk of an egg. As a styptic, or as a healing application to cuts and wounds, we consider it a mistaken remedy. It injures fresh wounds by its stimulant properties, and from the separation of the resins which follow the mixture of them with the blood. These combining form a solid mass between the lips of the wound, which mechanically prevents them coming together, and so setting up the healing process from the *first intention*. The *Tincture of Gum Guaiac* is a solution of that gum in aromatic spirit of ammonia (see *Diaphoretics*, *Stimulants*, etc.). *Tincture of Myrrh*, diluted, is a good lotion for spongy gums and sore palate, and a wash after

reducing lampas by bleeding. *Solomon's Balm of Gilead* is a tincture compounded of cardamon seeds, brandy, and a trace of cantharides. A *Tincture of Gentian* and another of *Ginger* may be kept handy for the purposes of dilution, but the roots themselves and the infusion, as we have said before, are the cheaper and more potent remedies. *Tincture of Muriate of Iron* is a styptic, and an active preparation. In warm water it is advisable in strangury, given every quarter of an hour in doses of twenty drops.

Tonics (see *Stimulants* and *Cordials*).—They are valuable medicines when judiciously employed; but, like cordials, they have been fatally abused. Many a horse recovering from severe disease has been destroyed by their too early or too free use. The veterinary surgeon occasionally administers them injuriously, in his anxiety to gratify the impatience of his employer. The mild vegetable tonics, camomile, gentian, and ginger, and perhaps the carbonate of iron, may sometimes be given with benefit, and may hasten the perfect recovery of the patient; but there are few principles more truly founded on reason and experience of the horse than that, disease once removed, the powers of nature are sufficient to re-establish health. Against the more powerful mineral tonics, except for the particular purposes that have been pointed out under the proper heads, the horse proprietor and the veterinarian should be on his guard.

(A) TONIC BALL.

Powdered bark	1 ounce.
Ginger	2 drachms.
Carbonate of soda	$\frac{1}{2}$ drachm.

Form into a ball with linseed meal and water.

(B) Another.

Sulphate of iron	$\frac{1}{2}$ ounce.
Extract of camomile	1 ounce.

Mix and form into a ball.

(C) Another, more powerful.

Arsenic	10 grains.
Ginger	1 drachm.
Powdered aniseed	1 ounce.
Compound powder of tragacanth	2 drachms.

Spring enough to form a ball.

Vermifuges, or Worm Medicines.—Tin or iron filings, not levigated, or powdered glass, are the mechanical remedies for worms in the horse. This class of remedy is called *anthelmintic*. The other remedies are: Common salt, six to eight ounces; savine leaves, one ounce; cowhage, half a drachm; calomel, one scruple; arsenic, ten grains; aloes, till they purge; tartar emetic, a drachm for six successive mornings, and then a cathartic ball; and, last and best, oil of turpentine, two or three ounces. All worm medicines should be given fasting. The best known and most certain symptom of worms is a dry yellow matter under the tail; worms, however, are often present without this appearance presenting itself. A proper attention to a supply of salt in the manger or food is the best preventive of these annoying parasites; and we need hardly repeat that prevention is better than cure. Clysters, with preliminary back-raking, will get rid of some sorts, such as thread-worms, tape-worms (seldom found in the horse), and round worms, the special parasite of this animal. The *bots* are not affected by our general vermifuges, and defy their action. The following clyster will often effect an ejection of ascarides, tænia, or round worms: solution of aloes, 4 ounces; tepid water, 1 quart; common salt, 1 ounce. And give the horse at the same time 1 drachm of tartar emetic every morning in a ball, and after six of these doses of the tartar, a moderate dose of aloes, to expel the parasites, already enfeebled by the previous medicine.

A WORM BALL.

Calomel	.	.	.	.	.	.	1 drachm.
Barbadoes aloes	.	.	.	.	.	.	3 drachms.
Oil of turpentine	.	.	.	.	.	.	1 ounce.
Soap	,	.	.	.	.	.	3 drachms.
Mix.							

WORM DRENCH.

Linseed oil	.	.	.	.	.	.	1 pint.
Oil of turpentine	.	.	.	.	.	.	1 ounce.

Weights and Measures.

The weights and measures throughout are Troy and Apothecaries' Weight and Measure.

WEIGHTS.

20 grains	.	.	.	.	.	.	1 scruple.
3 scruples	.	.	.	.	.	.	1 drachm.
8 drachms	.	.	.	.	.	.	1 ounce.
12 ounces	.	.	.	.	.	.	1 pound.

FLUID MEASURE.

60 minims or drops	.	.	.	.	.	1 fluid drachm.
8 fluid drachms	.	.	.	.	.	1 fluid ounce.
16 fluid ounces	.	.	.	.	.	1 pint.
8 pints	.	.	.	.	.	1 gallon.

ABBREVIATIONS.

Gut. or Min..	Drop.	|	℥	.	.	Drachm.
Gr.	Grain.	|	℥	.	.	Ounce.
℥	Scruple.	|	lb	.	.	Pound.

SECTION SECOND

THE HORSE

IN

SICKNESS AND DISEASE

CHAPTER XVII

THE HORSE IN SICKNESS AND DISEASE

FEVER—INFLAMMATION—INFLUENZA— GLANDERS AND FARCY.

I.—Fever.

FEVER in the horse assumes hardly ever any other than a mild, inoffensive form, and is no less insidious in its approach than (at least, until it has made some advance) indeterminate in its character. Now and then a cold and even a shivering fit is manifest; a sweating stage is rare, but not uninstanced. To assume that either one or both these paroxysms is requisite to constitute a fever is not only to show ignorance of the pathological nature of horse fever, but to argue in opposition to established practical evidence.

Inflammatory fever may be of two kinds: one arising without any manifest cause, or at least not dependent on any other disease; the other symptomatic, because it is the consequence of some manifest disease.

Whether fever, however, arise from any local and evident cause, or be self-creative, the phenomena observable seem in nowise to differ; from which we are led to the conclusion that in either case we may consider it the same disease.

The horse is at first observed to have become spiritless and heavy. In the stall he stands with his head hanging down, and manifests unusual disinclination to turn or move; out of the stable he has evidently lost much of his natural vivacity, and is found to sweat on comparatively trivial exercise. The extremities (the ears and legs) and the surface of the body grow cold; the coat becomes roughened; actual shivering, or an approach to it, may or may not occur. He refuses the next feed put before him; or, should he pick at all, he prefers the hay, or even the new straw. By degrees the sense of coldness leaves the body; at length both the extremities and it grow warm—perceptibly warmer than usual. The mouth, likewise, which was livid and cold before, now becomes hot and dry; the pulse rises with the accession of heat. In all cases it becomes quick; in most, also full; in others, also hard. Respiration is visibly disturbed: the animal draws his breath, though perhaps still but slowly, with a sign of labour or weight evidently unusual. By this time the early dejection is often succeeded by an unnatural watchfulness; the horse will have his head raised and his ears erect, as if he were in the act of listening, when he proves still, in reality, listless of all around him. He has now no appetite; his dung, if he should have lately voided any, is high-coloured and in small rolls. He stales but little at a time, oftener than usual, and perhaps not without some groan, grunt, or extraordinary effort.

We find that debility is one of the first changes which takes place; and in all the varieties and changes of appearance debility is always a leading feature.

Causes.—Debility, over-exertion, customary evacuations suddenly suppressed, cold applied to the body while hot. Horses that are kept in very warm stables, highly fed, and have very little exercise are peculiarly liable to febrile attacks.

Like most other disorders, however, and oftener, indeed, than most others, fever makes its appearance without any evident or determinate cause, unless we choose to ascribe it

to those vicissitudes which are so common at the seasons when fever most prevails.

The only disease liable to be confounded with fever is pneumonia.

That disordered or deranged state which assumes the form of fever in the incipient stage may continue and develop itself into a more perfect and decided form of fever ; or it may prove only to have been the precursor of some other disease.

The disturbed breathing in fever never amounts to the hurried, laborious, and painful heaving of the flanks we find in inflammation of the lungs. It may be said the same symptoms are present in symptomatic fever, or fever arising from local injury, or where pus is forming. But then there are always some other concomitant symptoms to guide us, such as cold, clammy sweats, indicative of pain ; or the pointing of a foot, if that be the seat of injury. Fever arising from external injury, or from local disease, is commonly more violent and active than any spontaneous febrile attack. It assumes more the form of painful or distressing irritation than mild and progressive disease, and is altogether such as the experienced observer refers directly to its proper source ; ever keeping in view the previous history of the case.

The most unfavourable and frequent termination of fever is inflammation of the lungs.

Treatment.—In speaking of the treatment of fever, we confine ourselves to it in its simple form, every thoughtful practitioner being fully aware that when it is the consequence of local inflammation that is the primary object to be attended to.

We must be guided in the use of the lancet by the state of the pulse ; for though blood-letting is indicated under all circumstances that have reference to inflammation, still here it must be done with circumspection. Older practitioners, in every case and indiscriminately, let the disease be what it might, bled and physicked. In the milder forms of fever the less we do the better, and allow nature to act for us ; at least, our measures should be more palliative than active. In the more violent forms, bleeding, regulated by the state of the pulse ; physicking in mild doses, so as to keep the bowels thoroughly open, without amounting to purging ; acting upon the skin by the use of

hellebore and digitalis; abstinence, green food, cool drinks, and cool air appear to be the essential parts of the treatment.

When bleeding is resolved on, take at least three quarts, and give the horse a mash before any purgative, lest the colon be impacted with hardened fæces. If not time for this, give a warm clyster of simple gruel. Then, when the bowels are moved, a fever ball (see Horse Medicines, (A) *Febrifuges*), and all corn taken away; the water should have the chill taken off, warm clothing applied, the stable kept cool, and an abundance of litter given. In severe cold weather, the stable should be kept about 55° Fahr. When the coat is staring, give—sweet nitre four ounces, acetate of ammonia eight ounces, water one pint; repeat at a quarter of an hour's interval.

Diseases, no doubt, are often cured by obviating their remote causes; and in this way strict attention to the state of the stomach, from its close sympathy with the brain, is a matter of great importance, and to be attended to here. Though we may not be able so readily to apply this to veterinary practice, still we may do a great deal; and conjoining this with our practical knowledge of the pulse, it is here our medical knowledge will assist us.

Under every form of disease, simplicity of prescription is desirable, more particularly while our resources and powers are abridged by the limited pharmacopœia of the veterinarian.

In the incipient treatment, one precaution is to be especially attended to, and that is, that active purges must not be administered; for, in the early stage, it is quite impossible to say that the case may not be one of approaching pneumonia; and should this happen, and active purgation have been established, we shall but too certainly have cause to rue a practice which has induced so much irritation of the mucous surfaces of the bowels in combination with disorder in the lungs; the two, when present together, being found, invariably, highly prejudicial to the subject of their attack.

Malignant Epidemic, Putrid, or Typhus Fever commences either as simple fever or as common catarrhal fever; but this soon goes on to produce great prostration of strength, together with fetid breath, and discharge from the nostrils, and entire loss of appetite. Its course is much

more rapid than in man. A congestive state of the vessels comes on, and they rapidly give way, by which life is soon destroyed. It is contagious, and few horses seized with it recover; indeed, its nature is such that most proprietors determine to destroy the infected animal, in order to prevent its spreading. (See *Glanders* and *Influenza*.)

II.—Inflammation.

Inflammation may be defined as a disorder of the capillary blood-vessels, that being its most visible symptom; this, however, goes no further than enabling us to recognise its presence by the heat, distension, redness, and pain which are so called. The blood passing through the capillaries gives forth an abnormal amount of caloric, hence the part is hot; the increased quantity of fluid distends them, hence the swelling; and from pressure on the nerves the tenderness; lastly, to the red globules of the blood, which, in health and its accompanying contractile power, are not admitted to the smaller vessels, but now enter them, the redness is ascribed. Although in the horse, his thick skin and hairy covering prevent the last sign from being so perceptible, it is nevertheless always present. The pain is the more acute in proportion as the part is supplied with nervous fibres.

Inflammation is divided into diffused and local, external and internal. The first class—diffused inflammation—we shall pass over. It is, in fact, general fever, indicated by an excessive irritability, carrying the constitutional disturbance of a severe local inflammation to the brain, and thence pervading the system. It therefore comes under consideration of diseases of the brain, nervous system, and heart, or circulation. In inflammation of the eye, function is impaired or suspended, and the sight affected; in the ear, deafness or preternatural and painful sensibility to sound; when of the liver, the fæces are clay-coloured, indicating absence of bile; in the kidneys, inflammation impairs or stops the secretion of the urine; in the limbs, inflammation prevents motion or induces lameness. It is accompanied by redness and swelling with heat and pain.

Causes and Various Results of Inflammation.—Inflammation may arise from a variety of causes, some obvious, others veiled from our view, and only discoverable by

reasoning, experience, and investigation. Their origin may be conveniently divided into : (1) Accidental ; (2) Spontaneous ; (3) Sympathetic.

1. *Accidental*.—In this case the exciting cause is generally evident enough, and usually a foreign body, which produces mechanical or chemical irritation.

Mechanical injuries comprise wounds and contusions and abrasions of all sorts, sprains, dislocations, and fractures, undue exertion of any part or organ, or the body altogether, which, in hunter's phrase, is called being "over-marked."

Chemical excitants comprise all such substances as possess properties of an acrid, or corrosive, or poisonous nature ; these are the mineral acids, the caustic alkalies, the metallic salts, and every caustic or irritant which we are in the habit of using in practice.

The state of the atmosphere, heat and cold, moisture and dryness, all in their turn become excitants of inflammation ; their mischievous agency residing more in the vicissitudes from one state to its opposite, than in any obnoxiousness in our climate from their excess or continuance. Generally speaking, horses turned out from warm stables and exposed at once to the open air, even during the inclement seasons of the year, seldom "take cold," or experience any direct inflammation from the change ; though the reverse of this vicissitude cannot be practised without such danger, and especially with young horses. Cold, without wet, even though alternated with heat, is not found to be nearly so prejudicial as when moisture is present too. Hence we are in the habit of viewing frosty weather as a season of health among horses ; and hence it is that the spring and autumnal months are the most unhealthy, the weather then being moist and variable, and the wind generally in a cold quarter. Independently of these changes, there are conditions of the atmosphere not understood, which, when they prevail, are apt to produce an epizootic fever among horses, which has been called "influenza."

Animal Poisons, as well as natural ones, are found to be occasionally suspended in the atmosphere, and through its medium produce their effects. The air of a hot and ill-ventilated stable may prove an excitant of inflammation, not only from its high temperature, but also from the noxious effluviæ with which it has become impregnated

by the dung, urine, and breath of many horses stabled together. These poisons may also be conveyed through the medium of the secretions. Rabies and other diseases produced by the bites of venomous creatures, are transmitted through the saliva. Farcy and glanders may be transferred by inoculation with the matter of either disease; and mange is probably conveyed in some peculiar exudation from the skin.

2. *Spontaneous Inflammations* are such as arise without any assignable cause. That there are many of that description we have daily proofs. Were our knowledge of structure and function perfect, and had we a thorough comprehension of the relations subsisting between the body and the various agents and influences naturally or necessarily connected with it, we should probably be enabled, in every instance, to link disease with its cause, and thus frame a full and satisfactory system of nosology. But at present we are much in the dark concerning internal causes, and even lack knowledge about those that are external, and in particular, in respect to atmospheric influence on the body.

3. *Sympathetic Inflammations* are such as owe their origin to disease or disorder already existing in the body. We know, in human pathology, how apt is one set of parts to take on disease through what we call "sympathy" at the time that another is suffering. In man, the digestive organs oftener than any other evince disorder; in the horse, the respiratory apparatus is the most common seat of disease; both which sets of organs, when disordered, may, in their turn, become the cause of disease in other parts of the body. The skin sympathises readily both with the digestive and pulmonary organs; and so do the urinary apparatus and the brain. Sympathy is also evinced in a remarkable manner between fellow-organs on opposite sides of the body. One eye is no sooner affected with ophthalmia than we begin to entertain apprehensions for the opposite one.

The Progress and Termination of Inflammation may be rapid or may be slow, depending on its violence, its nature, the part it is affecting, its exciting cause, the condition of the animal, and other collateral circumstances. In the horse it generally assumes the violent form, and runs its course rapidly; or, in technical language, is of the *acute*

character. At times, however, it appears in altogether a mild, or sluggish, or indolent form, taking then the epithet of *chronic*.

It too often happens in veterinary practice that, in consequence of but trifling illness or lameness being manifested by the animal, his master does not imagine it worth while to call in medical aid. The consequence is, that mischief is present, and by the time the "vet." is consulted, is out of the range and power of medicine altogether.

Treatment.—In the treatment of inflammation, obtain the clearest insight possible into its seat, its kind, its causes, and its present and probable effects, both as regards the part immediately affected and the constitution at large.

The degree and kind of inflammation must be taken into account in the treatment. The more active or acute the one, the more prompt and bold should be the other; though, where inflammation is of what is called a specific kind, experience teaches us that we do but little good in our treatment unless we can meet the case with specific remedies, such as are found peculiarly adapted for such anomalies. In specific ophthalmia, in mange, in farcy, and in glanders, we bleed and purge with but little comparative benefit. To be of real service to our patient we must have recourse to something in the shape of a specific remedy.

The first thing to be done in the treatment of inflammation is to remove the cause, supposing it to be still operating. In some cases, such as that of a hay-seed in a horse's eye, this is all that is required to be done. The cause being removed, the inflammation subsides, and ceases altogether. Should a horse pick up a nail in his foot, and that be found penetrating the hoof, and simply wounding the quick, its speedy extraction, with a little subsequent attention to the cleanliness of the wound, will be all that is commonly necessary to effect a cure. On the other hand, when, from the depth of the puncture, or from the irritability of the animal's constitution at the time, violent inflammation may ensue, the case will call for every attention we can give it.

When the eye is inflamed, the lids and the haw are drawn over its surface to shield it from the light, which, though under ordinary circumstances a natural and healthy stimulus, now that the sensibility of the organ is augmented, becomes

an annoyance to it; this teaches us to take care in cases of ophthalmia to exclude the light.

It is important to put the diseased part, as far as lies in our power, into a state of repose. And in no way can we better accomplish this than by placing the animal in "a loose box," with his head at liberty, in a pure and cool atmosphere, so as to lie down upon a comfortable bed whenever he feels disposed, and place himself in any posture that may afford him most ease.

Inflamed muscles, and tendons, and joints, should always be placed in a state of repose, if possible, and at the same time in that relaxed condition which leaves every fibre most at ease. We may commonly do much towards the attainment of this end in the limbs, by raising or lowering the heel or toe of the foot, as the case may require. Should the head or any part of the neck be the seat of inflammation, it may be found beneficial to keep the head elevated and confined; much mischief is done by suffering the animal to hang it down upon the ground. The principle by which we are to be guided in this respect is, to endeavour to maintain the part inflamed in that position which is most favourable to the return of blood from it back to the heart.

The next step, in a general way, is attention to clothing. There are but few diseases in which it is not desirable to keep the surface of the body warm, for which purpose we employ woollen clothing. The quantity or thickness of the clothes must, of course, be regulated by the season of the year, by the previous habits of the animal, as well as by reference to the disease under which he may at the time be labouring. In hot weather, clothing is commonly required rather for the purpose of protecting the animal from the annoyance of flies than for warmth, and, consequently, linen clothing is mostly to be preferred. Where warmth becomes the object, rugs or blankets are preferable to cloths; when both are used, the former should be placed next the skin. In no case should their quantity be such as to become burthensome.

The common food of a stabled horse consists of oats and hay. During the existence of inflammation or fever in the system, discontinue the oats, and substitute bran, in the form of mash, which are laxative in their tendency, and good, as you cannot use purgatives. On this last account, green

meat (whenever it can be procured) is to be preferred. Vetches, lucerne, green clover, and also the various esculent roots—carrots, turnips, potatoes, etc.—are all suited for the sick-stable, because they are more grateful to the palate of the invalid than his ordinary stable diet. During the height of inflammatory disorder, however, food is not only not required, but would by its presence in the stomach be apt rather to irritate than benefit; and as the disorder declines, the appetite commonly returns.

It is of great importance, particularly in cases of inflammation of the lungs, that the air of the box of the sick horse be cool, free from impurities, and frequently renewed.

The *medical treatment of inflammation* consists in the employment of constitutional and local means. The constitutional are, bleeding and purging, with the assistance of sedatives, and diuretics, and alteratives. The local means are, bleeding, cold and warm applications, and counter-irritation.

Bleeding.—When we consider the increased action maintained by the blood flowing with greater rapidity and in greater quantity through the vessels of the inflamed part, it seems that abstraction of blood must be one of the most direct means of subduing inflammation. In veterinary practice, in many cases, it is the only remedy we have it in our power to employ. In the acute stages of inflammation of the lungs, and even other organs of importance, neither internal nor external medicaments will take effect until we have succeeded in abating the inflammatory action by bleeding; and in cases where we cannot purge, we commonly effect nothing without the lancet. Although, as we draw the blood out of a part, we reduce the inflammation in it, yet we do not by this *cure* the disorder, for no sooner are the vessels emptied than they are filled again; in fact, time must be allowed for the inflammatory action to subside. Under the head *Bleeding* will be found the *modus operandi*, instruments used, quantity, and effects of abstraction of blood.

Although the abstraction of blood rapidly from a large orifice is a *check* upon inflammation, it has some bad consequences, which in modern practice have been fully proven. The olden practitioner was so convinced in this respect that, as Mr. Mayhew says, “he drew blood with the same complacency as he would draw beer from a barrel, and quite

as often, even supposing him to be very fond of that exhilarating beverage." In the present day, however, either the character of disease has changed, or it is perceived the practice alluded to was founded upon a mistaken basis. Horses could not now bear the loss of half that quantity of vital fluid which is, on good authority, believed to have been formerly taken from them. Many an animal then, having influenza, has been bled into hydrothorax. Many an animal has been so reduced by repeated bleedings that he has ultimately sunk, not from the disease, but in consequence of the measures pursued for its reduction. Bleeding has, therefore, lost its repute as the specific means of cure ; for any disturbance of the circulation is easier and more safely equalised by the administration of a stimulant, than only apparently tranquillised by the abstraction of a fluid of which the animal rarely has a drop too much.

Purgatives, in the human subject, form the next active agents in combating arterial excitement; but there are some peculiarities in the structure and functions of the horse which render these medicines less eligible than in man. To produce active purging in the horse causes great constitutional disturbance, and lowers the powers of the constitution in a remarkable manner, to say nothing of the time required for their action.

Sedatives and Nauseants are often valuable in inflammation ; as it is a law in animal economy, that whatever excites the sense of sickness, lowers the pulse in force and frequency, and so diminishes the flow of blood to the inflamed parts. Of these, aloes is the first, both as a purgative, a sedative, and a nauseant. Dose, half a drachm to a drachm every four, eight, or twelve hours. Hellebore root is another nauseant, especially when, as in diseases of the lungs, aloes are dangerous. In doses of a scruple to half a drachm every four or six hours, it lowers the pulse and inflammation ; but it is a poison in large doses, and therefore requires close watching. If saliva oozes from the mouth, and the animal hangs his head down, or turns outwards the upper lip, discontinue the hellebore immediately. It should be given only after bleeding has been tried. Of *sedatives*, digitalis is the favourite, in doses of half a drachm to a drachm twice a day. This also is a dangerous poison, producing stupor, cold extremities, clammy mouth, vertigo,

convulsions, and death. It irritates the bowels less than hellebore. Percivall gives the following formula :

Powdered white hellebore root, or	
powdered digitalis	. . . $\frac{1}{2}$ drachm.
Liquorice powder	. . . $\frac{1}{2}$ ounce.
Syrup to make a ball.	

Diuretics (or “urine-balls,” as the stablemen call them) are more active in their operation on the kidneys of the horse than the same class of medicines are with man, who depends more on the excretions by the skin. The physician prescribes diaphoretics to smooth-skinned man ; diuretics have the veterinarian’s preference. Sweating a horse, except by exercise—and that will not do in inflammation—is next to impossible. Mow-burnt hay and fermented food act on the kidneys of the horse. Nitre is the leading diuretic ; and for its combinations, and sedatives, see those heads in list of Horse Medicines.

Alteratives, too, as antimony and mercury, are used in combating inflammation, as well as cold and warm applications. Cold water, or salt and water, or Goulard’s lotion, are commonly used. Evaporating lotions have our preference. Vinegar and water, or spirits and water, answer the purpose well. In cases of much swelling, the following evaporating lotion can be recommended :

Sal ammoniac	. . . . .	1 ounce.
Vinegar	. . . . .	4 ounces.
Spirits of wine	. . . . .	4 ounces.
Water	. . . . .	1 pint.

Mix the sal ammoniac and vinegar, then add the water and spirits.

Or,

Liquor of acetate of ammonia and spirits	
of wine, each	. . . . . 4 ounces.
Water	. . . . . 1 pint.

Paradoxical as it may appear, *warm* applications are as serviceable in many cases of inflammation as *cold* ones. When *heat*, however, is applied, it must always be accompanied by *moisture*.

III.—Influenza.

This formidable disease has of late years extensively prevailed throughout every part of the kingdom. Malignant epizootics are on record which so strongly resemble its symptoms and course, though imperfectly recorded, that there is no reason to consider it a new disease. It is as well to be candid in acknowledging that we are ignorant of its immediate cause, though it is easy to talk learnedly of "atmospheric influences" of the real constituents or malefic action of which we know nothing, investigation having as yet shown no peculiar poison present in the air at the period or place of such visitations. Influenza spares neither young nor old, strong nor feeble, and neither regards season of the year, nor situation, dry or moist, elevated or low. Sometimes it is mild in form and action, resembling much a common cold, at others accompanied with severe internal inflammation, and destroying like an angel of death passing through animal creation. The term *influenza* is that adopted by almost universal consent, and expresses its tendency to spread. Mr. W. C. Spooner, in a paper contributed to "The Veterinarian," has given a clear account of the disease, of which we shall here avail ourselves:

"*Symptoms.*—The first symptom that awakened attention was the sudden failure of the appetite, which was either total or partial; the horse, perhaps, might have appeared perfectly well in the morning, and at noon refused his food. The mouth hot, the pulse quickened, varying, however, from 40 to 80, being sometimes full and strong, but more frequently soft and weak. There was, generally, a somewhat dull appearance of the animal at first, although nothing to what afterwards supervened; the coat was often staring, and, when so, the attack usually became more severe. This symptom, however, was far from being universal. The extremities were rarely cold. In the course of six or twelve hours the symptoms became more aggravated, the pulse increased in frequency, and the appetite more diminished, and, probably, the legs and eyelids considerably swollen. In some cases the respiration became quickened, and in others there was cough and sore throat; but in the majority of my patients, there was no bronchial affection whatever.

In a few instances, the disease quickly reached its acme, but, generally, the symptoms increased in severity for two or three days, when, supposing judicious treatment had been employed, they gradually declined, and at length totally disappeared, the animal slowly regaining his former health and spirits.

The bowels, generally speaking, were not apparently much deranged, but their mucous coat was particularly susceptible to the action of aperient medicines; and the fæces were frequently enveloped in thin slimy mucus, and often softer than in a state of health.

In some cases the affection of the eyes was so violent as to occasion temporary blindness; and in others pneumonia was present, but more frequently severe bronchitis. In many patients, the œdematous swelling of the legs was enormous, and continued obstinate when the other symptoms had abated; but, commonly, in proportion as the legs and eyes were much affected, the internal viscera were free from disease, and *vice versâ*. This rule, however, was by no means universal, for, in several patients, severe cephalic and thoracic symptoms were present in the same subject and at the same time.

Treatment.—When the pulse was full and strong I abstracted blood, and with the best effect. The blood was slow in coagulating, and invariably presented a buffy coat. I took great care, however, not to abstract too large a quantity; and could produce the desired influence by half the quantity which, in ordinary inflammatory affections, it would be necessary to take away. The amount of blood withdrawn was always determined by its effect on the pulse, taking care, as soon as its character was materially altered—that is, softer and less perceptible—to pin up the orifice. This alteration was sometimes produced by the loss of only 4 lbs. of blood, oftener by 6 lbs., occasionally by 8 lbs., and in a few instances by 10 lbs. In two or three cases where there appeared to be severe internal inflammation I repeated the blood-letting on the following day, and in one instance on the same day; but, as a general rule, even in cases where the pulse had on the following day regained its strength and fulness, I abstained from a second bleeding, trusting to medicine and the progress of the disease to soften the pulse, which I found to take place commonly on the second or third day.

Local venesection was more frequently resorted to than general bleeding; indeed, whenever the eyes were much inflamed, or the lids swollen, Mr. Turner scarified the latter with a lancet, and opened the angular veins with the best results; the local inflammation generally subsiding in the course of twelve or twenty-four hours, whether the patient had been bled generally before or not.

The treatment in the way of medicines consisted in administering the following:

Croton oil	5 drops.
Nitre	4 to 6 drachms.
Tartarised antimony	1 drachm.
Spirit of nitrous ether	4 to 8 drachms.
Spirit of Mindererus	2 to 4 ounces.
Warm water, sufficient to form a draught.	

Sometimes 4 drachms of bi-tartrate of potash were added to the above; and when the head appeared much affected, 1 drachm of camphor. This draught was administered generally once, but sometimes twice a day, the croton oil being omitted after the first dose. After the first day, in by far the greater number of cases, 2 drachms of gentian were added to the draught; and after the second or third day a ball was substituted for the draught, consisting of:—

Nitre	3 drachms.
Tartarised antimony	1 drachm.
Gentian	2 drachms.
Pimento	1 drachm.

In one case the above draught produced profuse perspiration immediately after and each time it was administered. Although this effect may be principally ascribed to the idiosyncrasy of the animal, yet it proves the diaphoretic properties of the medicine, though this may not generally be distinctly perceptible.

Counter-irritation.—In by far the greater number of cases there was no inflammation of the air-passages; but whenever it was denoted, I blistered the throat, the course of the windpipe, and the breast; or inserted setons or rowels, as the particular case appeared to demand.

Such is a brief account of the treatment found successful,

not only in conquering the disease, but in restoring the health and strength in a short space of time. Although the majority of cases were not dangerous, yet many of them were so ; and it is notoriously the fact that a great number of horses have died from the disease in various places."

IV.—Glanders and Farcy.

Volumes upon this horrible and fatal malady have been written. Glanders consists in a discharge, from one or both nostrils, of matter which by transfer or inoculation will produce the disease in another animal, either of the equine or human species. There is every reason to believe that glanders and farcy are merely modifications of the same disease ; or rather that farcy, in many cases, supervenes on glanders. The seat of glanders is in that membrane with which the respired air comes in contact, and which lines the nose, the sinuses of the head, the windpipe, and its branches.

The diseases with which glanders is liable to be confounded, or for which it may be mistaken, are catarrh, nasal gleet, and strangles.

The signs of true glanders are with singular accuracy described by old Solleysell in his "Compleat Horseman." No better diagnosis has been made since, with all our science. He says : "The signs by which the disease may be known are, when a horse, already too old to be troubled with strangles, without a cough, voids matter by the nose, and has a kernel sticking to the bone ; and besides, in glanders, the matter usually flows from one nostril, whereas in a cold it runs almost always out of both."—"Some cast the matter that is voided by the nostrils into water, and if it swim on the top, they conclude the horse to be free of this distemper ; but if it sink to the bottom it is a sign of glanders : the principal use of this experiment being to distinguish the pus."—"But you must not depend on the certainty of this sign ; for if the matter stick to the nostrils like glue, it is a bad sign, and you may conclude the disease to be the glanders, though the matter do swim on the top."—"When either the breath or matter that comes out of the nostrils stinks, the disease is almost always incurable."—"I have seen horses troubled with this distemper without kernels, or, if there were any, they were little and moveable ; and

the only sign by which we could discover it to be glanders was by the glueyness of the matter."

The forms of glanders, in modern books, are called *acute*, *sub-acute*, and *chronic*.

Acute Glanders results from inoculation or contagion of the virus. This runs its deadly course, and includes typhoid or putrid glanders. The course of acute glanders cannot be better illustrated than by the following note from the cases of Mr. John Field:

"*May 3rd.*—An ass was innoculated on both upper eyelids, both sides of the loins, the off side of the withers, and on the inside of the ala of each nostril, with the discharge from the off nostril of a grey gelding (purchased three years previous), which was affected with this same glanderous discharge at the time of purchase, and had so continued ever since.

7th.—All the wounds suppurating except those on the nostrils, which appear to be healing.

9th.—Absorbents inflamed from the ulcers on eyelids and back.

14th.—Absorbents much thickened, having diffused inflammation about them, and at different parts of their course circumscribed tumours suppurating; the inflammation from the ulcers of the loins proceeding to the groin, that from the off side of the withers to the breast, and, on the eyelids, producing small fluctuating tumours on the jugular vein, just below the ear; the alæ nasi were beginning to swell, and there was a snuffing in breathing, etc.

19th.—The alæ nasi much thickened, copious discharge from nostrils, and the swelling increasing.

22nd.—Respiration greatly embarrassed. He died on the following day.

Examination.—Much frothy spume in trachea—general infiltration of lungs, which were inflamed—considerable consolidation of the anterior and inferior portion of right lobe—wartly excruciation of Schneiderian membrane of both nostrils to a greater extent than I had ever witnessed before."

Sub-acute Glanders is the variety of most ordinary occurrence. "It commences with the usual signs—slight or otherwise—of indisposition; and the disease may, though the circumstance is a rare one, in the first instance assume the acute type. Instead, however, of continuing its rapid

course, even after ulceration has displayed itself, both the inflammatory and ulcerative processes subside down to a state almost of total inactivity. The Schneiderian membrane grows pallid, acquires a leaden hue, and the ulcerations upon it lose their prominent red-streaked borders, and exchange their rugged bleeding bases for comparatively smooth and livid bottoms, throwing up a glass-like reflection from the lymph matters covering them. It is evident, the moment the nose is inspected, that the disease exists in the sub-acute form; how long it may continue so is very uncertain. It will not visibly impair the health, nor affect the appetite or spirits, so long as it does remain. The moment, however, anything occurs to derange the health, or even after a certain time—after a month, or two, or three—without any apparent superadded cause, we may expect the acute disease to supervene, and then the destruction of the patient's health commences, and is speedily consummated in death.

Chronic Glanders consists simply in a discharge from the nose, oftener from one nostril than from both, accompanied by enlargement of the correspondent gland or glands. Symptomatically it differs from the acute and sub-acute diseases in the absence of anything like inflammation or vascular injection, or chancre, or, in fact, of any perceptible change whatever in the aspect of the Schneiderian membrane denoting morbid activity. All is as usual in the appearance of parts, and in the animal's health and spirits and appetite; nothing whatever seems amiss, save the flux from the nose and the submaxillary tumefaction. And in this state, as we have recently observed, the horse may continue for years.

Chronic glanders appears sometimes as the sequel of other disease in the air-passages and lungs. It mostly attacks its victim in a mild and masked form. The horse is thought to have caught cold; and no suspicion, perhaps, is aroused to the contrary until it comes to be discovered that this "cold" is lasting a great while longer than it ought to endure, and that it resists all means of cure. The horse's ordinary spirits and looks and appetite are not in the slightest degree impaired. He works as cheerfully as ever; but all the time he has a discharge from one nostril.

No cough accompanies real glanders in any of its stages; and this, though a negative piece of information, should be taken as a criterion not to be neglected.

As the disorder proceeds, it affects both sides. Chancres appear all over the pituitary membrane, occasioned by the erosive nature of the discharge. This assumes a different appearance as the fluids of the individual may have been more or less vitiated. The appearance or quality of the discharge differs also, according to the manner in which the disease may have been engendered or caught by infection, as is already shown in distinguishing the acute and sub-acute varieties. If it come of the first-mentioned, through a depraved system, the glands are harder, often smaller, and always adhere more closely than in those cases which are derived from infection at a time when the animal is otherwise in comparatively good health. Again, with the infected horse the matter comes off copiously; it is curdled, and may be rubbed to powder between the fingers when dried. It subsequently hardens, and becomes chalky when submitted to acids; whereas, the animal that engenders the disease without receiving infection, sends forth matter that is parti-coloured, less in quantity, blackish, watery, and mixed with bloody and white mucus.

Well worthy of remark is the fact that when horses in a tolerable state of health first receive infection, they show mettle, and are full of freaks; as the disorder proceeds in its ravages this spirit goes off. Other acquired diseases have the same effects on animals—the venereal, for example, on man.

A great stench accompanies the discharge in long-confirmed glanders, which increases during the latter stages of the disorder; and the stableman who has once scented it may presently ascertain whether glandered horses have been recently kept in any stable he may examine for the purpose of detection.

In duration, hardly any disease can be more uncertain than chronic glanders. It may continue, simply as a discharge from one nostril, accompanied by submaxillary glandular enlargement, with very little or unimportant variation in either, for months—nay, for years. On the other hand, it may run into the acute in as many weeks. Any person, therefore, having a horse of this description in his possession, can at no period say how long it may be before the disorder may show itself in an active, nay, rapidly destructive form. In some cases the nasal flux runs for a long period with but slight or unimportant alteration.

in others, in quality as well as quantity, it exhibits most remarkable fluctuations—at one time appearing so scanty and trifling as hardly to be worth notice; at another, pouring forth in all the abundance of the eruption of pent-up channels, solid as well as fluid, from the admixture of lymph with muco or sero-purulent flux, and all of the most fetid nature, in consequence of having been shut up for a period, and so undergone a putrefactive fermentation within the sinuses of the head. Its colour, too, is very variable, depending upon the time it has been retained within the sinus. It may be white, yellow, green, brown, black, according to circumstances—its colour being often a sort of guide to us in respect to its composition and probable duration in confinement.

A distinction must be made between chronic glanders and what we are in the habit of calling nasal gleet—an affection some horses are known to have either all their lives, or at certain periods of them. The important question for us to consider is, how are cases of nasal gleet to be distinguished from those of chronic glanders? The discharge in gleet consists of an unusually white mucous or sero-mucous matter, and in several instances has been remarked to be lumpy. There is no enlargement under the jaw; and this circumstance, as well as the white, mucous, and lumpy nature of the discharge, together with the history of its origin, which should be carefully inquired into, may be found pretty safe ground of distinction between nasal gleet and chronic glanders.

Strangles is another disorder with which glanders may be confounded, but not by an experienced practitioner. The different points in the symptoms and progress of that disease will be noted under *Strangles*.

The causes of glanders and farcy have occasioned as much difference of opinion as the *nature* of the diseases themselves.

It has been said, in a general way, that close, unwholesome stables, hard work and bad provender, sudden changes from cold and wet weather to hot close stables, hard work and insufficient keep, and, in short, anything that will weaken the animal considerably, is likely to produce glanders or farcy.

There will be no danger in admitting this opinion if, at the same time, we keep in view the contagious nature

of the disorder, in whatever manner it may be produced. For if such cruel and foolish treatment of horses does not produce glanders and farcy, it produces other disorders which are often more speedily fatal than glanders; and if it does not actually produce a disorder, it weakens the constitution to such a degree that the animal is rendered more susceptible of the contagion of glanders, as well as of other diseases. It is from this cause that glanders spreads so rapidly amongst post and stage-coach horses, while among horses of a different description its progress is generally slow.

It is a remarkable circumstance that glanders cannot be communicated by applying the matter which is discharged from the nose of a glandered horse to the nostrils of a sound horse, unless there be an open wound or sore, even though a piece of lint soaked in the matter be put up the nostrils, and kept in contact with the pituitary membrane for a short time, or even if the matter be thrown up the nostrils with a syringe; but if the smallest quantity of matter be applied in the way of inoculation, either to the membrane of the nostrils or to any part of the body, a glanderous ulcer will be produced, from which farcy buds and corded lymphatics will proceed. After a few weeks the poison will get into the circulation, and the horse will be completely glandered. The circumstance of glanders not being communicated by applying matter to the nostril enables us to account for a horse escaping the disorder, as he sometimes does, after being put into a glandered stable or standing by the side of a glandered horse. Glanders, however, is frequently communicated by (accidental) inoculation; and there is only one other way in which it can be communicated, that is, by swallowing the matter which flows from the nose of a glandered horse.

A horse affected with glanders may inoculate himself, and thereby produce the farcy. This has happened to horses while at grass. The horse has an itching in the hind leg, which leads him to rub and bite the part, and at the same time rub on it the glanderous matter which flows from his nostril. The possibility of this circumstance taking place may be easily proved by inoculating a glandered horse, in any part of his body, with some of his own matter. There are many ways in which a sound horse may be accidentally inoculated with the matter of glanders,

for the slightest scratch in any part of the body is sufficient. Horses that are cleaned with a curry-comb are very liable to be scratched in those parts where the bones are prominent, such as the inside of the hock and knee, the shank bones, and the head. To such scratches glanderous matter may be applied by the hands of the groom after he has been examining the nose of a glandered horse, or wiping off the matter from his nostrils; or by the horse himself transferring glanderous matter from the nose of a diseased horse, or from the manger, or other part where any matter has been deposited; for horses are very fond of rubbing their noses against the manger or stall, and a glandered horse will generally try to rub off the matter from his nose against the manger, the rack, the stall, or against another horse. If a sound horse happens to stand by one that is glandered, they will often be seen nabbing or gently biting each other, or rubbing noses.

In short, having proved that glanders is thus communicated, we can conceive a variety of ways in which a horse may be accidentally inoculated. When a horse has been twitched, he generally rubs his nose and lips with considerable force against the manger, and may thus easily inoculate himself with a glandered splinter. The parts where local farcy first appears are those most likely to be accidentally inoculated; that is, the inside of the hocks and knees, the shanks, the lips, the under jaw—where grooms are often trimming off the long hair with sharp-pointed scissors, or singeing them with a candle, and often causing an itching, which makes the horse rub the part against the manger. In this way the heels also are often wounded. Horses that are too highly fed and little worked are liable to prurient humours, which make them nab or bite their skin, and scratch the hind leg with the opposite foot; and we may often see them bite, rub with the nose, and scratch with the hind foot, alternately, the other leg.

The disorder, too, would probably be more readily caught by eating the glanderous matter mixed with oats or hay, than by drinking it with water, as in the former case it is so intimately mixed with the food by mastication.

Having treated of the several ways in which glanders may be propagated, the modes of prevention almost suggest themselves. The glanderous matter exposed to the gas arising from a mixture of common salt, magnesia, and oil

of vitriol has been so disinfected that it has become inert, even when a young ass has been inoculated with it. This gas as a fumigation may be used when the stable is to be purified after glandered horses. Some persons advise the stables to be pulled down; this is altogether unnecessary. Let every portion of the stable to which the animals could have had access be thoroughly washed with chloride of lime, the following day scrubbed with warm water and soap, and, when thoroughly dry, washed over with sulphate of zinc. Three days after they may be occupied without danger.

From these observations we gather that the precautions against the generation and spread of glanders and farcy are: (1) *Ventilation of Stables*; (2) *Cleanliness*, in which is included the draining of them; (3) The immediate and complete *Separation of the Sick from the Healthy*.

Communication of Glanders to the Human Subject.—Though for a long time disputed, the melancholy fact that glanders is communicable by the horse to man has received ample evidence of late years. It is as well proved as inoculation in syphilis, the absorption of the vaccine virus, or the contagion of itch or mange multiplying the acarides which produce those irritating skin diseases. Of the nature of the virus of glanders we know no more than we do of those of syphilis, rabies, smallpox, etc.; we can only speak from observation of their effects. When glanders is communicated to man, the consequences are indeed horrible. The whole secretory and excretory systems are affected, the glands of the armpits, the groin, and especially the salivary glands, swell painfully and burst, and the sufferer dies pitifully. Mr. Mayhew says: "Three cases have come to the author's knowledge. Two respectable gentlemen, moving in good society, were contaminated, and both perished miserably of the terrible disease. Mr. Gowing of Camden Town, informed the writer of a boy who went out of a shop to hold a customer's pony. While the boy was so placed, the pony cleared its nostrils, and a portion of the ejected matter flew into the lad's eye. The handkerchief removed the soil, and the accident was forgotten. The poor youth was glandered, and died in the University Hospital."

Treatment of Glanders.—The general opinion of English and French veterinarians has settled down into a belief

that glanders is incurable, and that farcy is curable. This is not, however, a reason why investigation should be relaxed or abandoned, although the long-sought-for and often - proclaimed specific, or the successful plan of treatment, yet remains to be discovered.

FARCY.

We have already said that farcy and glanders are modifications of the same disease. Farcy was for a long time supposed to be a *disease of the veins*; a natural error, seeing the lymphatic vessels along which the virus travels were then considered as a sort of vein, if not veins themselves. Later writers regard the farcy-bud as the degeneration and coagulation of the lymph. Farcy may be said to have its seat in the skin; that of glanders being accounted to be the pituitary membrane. Glanders and farcy together constitute one and the same disease of the lymphatic vessels and their glands. The disease originates in these vessels, and for a time confines itself to them. In the course of its progress, however, it extends into the contiguous tissues, affecting in one case the true skin, in the other the mucous lining of the air-passages; and it is in these parts respectively that the phenomena of farcy and glanders are exhibited. No wonder, therefore, that the appearances in farcy (the local symptoms) should differ so much from those of glanders; and that the buds and ulcerations of the one should be found, in the course of treatment, so much more manageable or more "curable" than those of the other form of disease; or that one disease should be so much more dangerous to the animal affected, as well as to horses (in health) around him, than the other. Inflammation in the cutis is a different disease from inflammation in a mucous membrane, productive of different phenomena, and requiring a different treatment: hence the apparently wide differences between two diseases essentially or in nature alike.

Treatment of Farcy.—The system must be supported by a generous and agreeable, but not too stimulating, diet, to which carrots and green food form useful additions. The horse must be exercised daily. If we determine on emptying the bowels, mix firstly a purgative and diuretic mass together (see Medicines) into a ball of moderate strength.

Next administer tonics. Of these, sulphate of copper, sulphate of iron in his drink; chloride of barium (muriate of barytes), in half-ounce doses at first, increased to one ounce daily, in a ball with meal and molasses, have each their advocates. For ourselves, we advise the tonic to be varied, upon experience of its efficacy or the reverse. Blaine tells us that nearly all the mineral acids have been found useful, and some of the vegetable ones. All the different forms of mercury have been tried with some success; but corrosive sublimate appears to have answered best; and when determined on, should be given to the full extent the stomach and bowels will bear without salivation or symptoms of inflammation being brought on. Ten or fifteen grains may be commenced with, ground very finely with sugar, and given night and morning in gruel as a drench.

If this occasion no distress, it may be increased to a scruple, and from this to half a drachm, if it be borne with ease; but the utmost care and watchfulness should be exerted when the dose is considerable. When the weakness and irritability of the horse are too great for the exhibition of the corrosive sublimate, give half a drachm of calomel twice a day; or the blue pill, or the sulphuret of mercury may be substituted, still carefully watching the salivating process. Should the stomach suffer much under the use of these active agents, either join with them bitter tonics, or alternate them with each other. We would also recommend that they be in these cases given in solution, and further sheathed by some ingredient of a mucilaginous nature.

After the trial of mercurials, arsenic ought next to claim the attention, as that has also proved efficacious in farcy; and it may be given in the form of liquor arsenicalis, or Fowler's tasteless solution. Verdigris was for some time a favourite remedy at the Veterinary College, in doses of a scruple three times a day, increased to a drachm. We have witnessed also good effects from this preparation; but we have found it most efficacious when given in a ball in conjunction with the blue vitriol, half a drachm at a dose. Some practitioners choose to employ several articles in conjunction, and they assert the cure is speedier from the combination than from any one article separately. In this case, give the following

Corrosive sublimate	5 grains.
Arsenic	5 grains.
Verdigris	5 grains.
Blue vitriol	$\frac{1}{2}$ scruple.

Mix into a ball with palm oil and linseed meal; give every morning.

In addition to the several acids, benefit may be derived from the following drinks, in conjunction with the ball last mentioned.

Sulphuric ether	1 ounce.
Laudanum	1 ounce.
Tincture of quassia	1 ounce.
Oak bark	1 ounce.
Capsicums	2 drachms.
Water	1 pint.

Sea bathing and daily doses of sea water have been found beneficial in cases of farcy with enlarged limbs and œdematous swellings.

Local Treatment in farcy is of as much consequence as constitutional means. In glanders we are, in respect to the extent and nature of the disease, working in the dark; we know neither the precise condition nor the exact situation of the ulcerations. In farcy the local disease is under our eye, and we can apply topical remedies suited to the inflamed, tumefied, ulcerated, scirrhus, or other condition of the limb.

In their inflamed condition, the best application to the cords of farcy-buds is a refrigerant or evaporating lotion. With this they ought to be sponged often enough to keep the hair wet, the object being to repel or disperse the swellings.

In the majority of cases of farcy it happens that, instead of diminishing in size and growing harder in consistence, the buds plump up and become soft, and at length turn into pustules; and once a pustule formed, it will ripen and burst, and turn into an ulcer. As soon, therefore, as we perceive that it is out of our power to prevent the suppurative stage it becomes our duty to contribute all we can to its promotion. For this purpose fomentations may be used to the parts; poultices likewise, if we can manage to apply them.

The patient's diet, also, must be improved in this stage; he should no longer feed on mashes, but have scalded oats, carrots, turnips, linseed, etc.

Should, then, the season of the year be favourable, pasture may offer a resource, certainly pleasant to the animal, and one that the medical attendant will, with satisfaction to himself, if not with benefit to his patient, recommend. A change of diet, from dried to green and relaxing food, living in the open air, and the constant exposure of the farcinous limb to a lower temperature than that of the stable, together with the walking exercise the animal is from time to time taking upon it, all have a tendency to do good, and have sometimes proved of eminent service. In particular, salt marshes have been regarded as beneficial, and apparently not without reason. Whenever and wherever the patient may be turned out to grass, he ought to have no companions save such as might happen to have on them the same disease as himself. It would be full of danger to suffer him to run with healthy horses. In situations where, or seasons when, pasture cannot be procured or resorted to, it is desirable to soil the patient in his box; vetches or rye, or, in the winter season, carrots or Swedish turnips become a desirable change of diet. There arrives a period, in this protracted and indolent stage of farcy, when the resources of medicine seem to be exhausted; this is a period when the disease is judiciously "left to Nature" to take, uninterfered with by art, her spontaneous course.

CHAPTER XVIII

THE HORSE IN SICKNESS AND DISEASE

DISEASES OF THE BRAIN, SKULL, EYE, TEETH, TONGUE, PALATE, AND PHARYNX.

I.—Diseases of the Brain and Nerves.

INJURIES OF THE BRAIN—CONCUSSION—FRACTURE OF THE
SKULL—STAGGERS—ABSCESS OF THE BRAIN—MEGRIMS—
PARALYSIS—LOCK-JAW—RABIES—STRINGHALT.

WHEN we observe the smallness of the brain of the horse, we find physical causes for the animal's limited intellectual

development. Insanity, in the sense of human medicine, does not exist in the horse, whose sensorium is not affected by causes of a social or moral nature; though his brain may be affected, as the centre of the nervous system, by wounds and irritating disorders, through what we now know as "reflex nervous action." Its sympathy and connection with the stomach is also clear. The brain is disordered by severe indigestion; and a violent blow upon the stomach, or that organ seriously overloaded, may give rise to what is called "stomach staggers"—a decided cerebral attack. Tetanus, or locked jaw, from wounds, is also another example of reflex nervous irritation. A horse pricks his foot with a nail, and tetanus is sometimes the result. The spinal marrow, which is a continuation of the substance of the brain, exhibits clearly the same nervous mechanism. Division or injury of the marrow produces loss of sensation and voluntary motion in those parts only which derive their nerves from it beyond (or below) the part injured or divided.

Notwithstanding the brain is the source of all sensation, it is, in itself, destitute of feeling. In operations on living animals it has been pricked, lacerated, cut, even burnt, without any manifestation of pain. We remember having heard the late John Abernethy mention a case where a man lost two ounces of brain by an accident, and lived many years, at the head of a mercantile establishment, with apparently unimpaired faculties.

Pressure and Concussion, however, have serious effects. A portion of bone depressed from above prostrates the animal and destroys life; not so laterally, or from the side; and pressure on the spinal cord produces paralysis *behind* the part so interfered with.

Injuries of the Brain are not frequent in the horse, though backward falls and blows are not uncommon, owing to the immense strength of the parietes or walls of the skull.

Concussion, so fatal to man, with his higher organisation, produces nothing more than fright or giddiness. A bleeding, a cooling draught, and a warm fomentation to the occiput, will generally dispose of this apparently dangerous accident.

Fracture of the Skull, for the same reasons, is rarely seen unless at the base, or basilar process. There is in most cases more danger of blood-vessels giving way than bone, even in these heavy concussions. Unless abscess of the

brain, of which we shall speak presently, ensue, external injury seems but temporary in its effects.

Blood-vessels are liable to give way in any part of the brain; those, numerous and large, about the base, contiguous to the seat of the blow, are most likely to become ruptured. The symptoms will, of course, vary in their nature and intensity with the kind and degree of the mischief done: the faculties of motion and sensation will be more or less impaired, should not death itself immediately result; the senses also, one or more, will probably be lost or disturbed. By the parts affected, and by the extent to which they are affected, must we form our opinion of the nature of the case, as well as our prognosis. Commonly, the animal is found down, unable either to rise or stand without assistance. Should he still retain feeling, and be in possession of his senses, and there be means nigh or at hand of treating him, remedies may be tried upon him. But when he has to be removed upon some drag or carriage to any distance, he will in general do himself so much mischief by struggling before he has arrived at his place of destination, that his case will probably be rendered yet more hopeless than it was in the first instance. Fresh hæmorrhage will be likely to ensue, and may prove fatal, even when, before the struggling, hopes of recovery had been entertained. On this account it is of importance, when the case holds out prospects for treatment, to house the animal somewhere close to the place where the accident has occurred. In general, blood-letting will be proper; though the symptoms from loss of blood or nervous depression may be such as not only positively to forbid this evacuation, but even to demand the exhibition of stimulants.

Vinegar, muriate of ammonia, and spirit of wine, with warm water, should be applied to the head. A mild purgative, if the animal can stand, may be administered. Where paralysis is marked, death usually soon supervenes.

STAGGERS.

The farriers divide inflammation of the brain into three disorders, called, in their peculiar phraseology, *sleepy staggers*, *mad staggers*, and *stomach staggers*.

Sleepy staggers is usually no more than the first stage of *mad staggers*. The horse is drowsy and dull, and falls

into a lethargic state. His appetite is rather interrupted than lost. The horse is found with his head hanging between his fore legs, or resting in the manger and forced against the wall of the stable; or, if at grass, against a tree or wall. The eyelids droop, and when forced open, show the pupil unnaturally dilated. The lining membrane of the nostrils is of a dull leaden colour (we have found them, as well as the conjunctiva, just the reverse, increased in redness). Costiveness is present, and the stupor extending to the absence of all nervous irritability. It is only in this stage of the disorder that remedial measures prove efficacious.

Treatment.—Copious blood-letting is urgently indicated. Open both jugulars and let the blood flow till the eye awakens or the animal sinks. Give purgatives (see List) every three hours till the bowels are fully relieved, and sedative infusions: half a drachm of aconite, or a drachm of digitalis, with a pint of hot water poured upon it. Cool, and give this quantity every half hour till weakness, not stupor, supervenes. He will then (if down) breathe more gently, open his eyes and look at, and perhaps recognise things or objects. When this treatment fails, and the mere congestion or surcharging of the vessels of the weakened brain ensues, then inflammation comes on, and we have the second stage, or,

Mad Staggers, Phrenitis.—This fatal termination is ushered in by the animal waking out of his sleepy state, and staring about him with a fearful wildness and vacancy, his breathing becomes quicker and laborious, and the pulse rising with the respiration. Suddenly, he makes a frightful throe, dashing himself against rack, manger, or wall, or throwing himself down, and then lying breathing stertorously, his eyes looking as if starting out of their orbits, no light at the time affecting the dilated pupils, and the animal totally heedless of anything that may be done or said to him. On other occasions the frantic animal will rear both his fore legs into the manger, and in this posture stand, with his head erected, for several minutes, no person daring to approach, lest he should unexpectedly spring up, or reel and fall upon the intruder. In a word, our patient is now “mad”—furiously so, in the worst sense of the word as applied to staggers; and how, or where, or upon whom he may in his delirious plunges precipitate his body, is so uncertain, that any approach without extreme caution,

or in a way in which ready escape is at hand, is fraught with imminent peril. As the disease increases, instead of lying quiet as before, in a state of apparent insensibility after a throe, convulsions will follow so quickly upon one another that the patient will be kept in a continual struggle, panting and perspiring, and perhaps foaming at the mouth, leading his attendants to believe he is not only phrenitic, but actually rabid. This is a circumstance engendering so much apprehension and alarm, that not only is a prompt and decisive opinion demanded of the veterinarian, but, at the same time, such a line of conduct on his part as will at once convince his employers that he is right in his decision.

Mad Staggers must not be confounded with *rabies*—there being no dog, or mad dog at least, visibly connected with the case, is *primâ facie* evidence. Further, the symptoms of the two cases are different, there being, according to Mr. Blaine, in rabid phrenitis, “not merely a frantic, but a decidedly mischievous disposition,” the animal purposely attacking everything, living and dead, all around him; rack, and manger, and stall are all laid prostrate.

In the true staggers nothing of this kind appears. The horse is wild and beats himself about, and endangers everything about him, but not with premeditated design. On the contrary, he merely labours under spasmodic contractions of the muscles, which force him to these violent efforts. He rears, plunges, falls, and injures himself in the frenzy of pain. Veterinary authorities recommend the opening of both temporal arteries in *mad staggers*. Recovery is, however, scarcely to be hoped for, as a return of the disorder is to be feared, or an entire loss of energy, without which the animal is almost valueless.

Mr. Percivall's experience furnished him with several cases of recovery from phrenitis. He says, after speaking of bleeding from the temples: “I have had several cases which were despaired of, until, as a last resource, while the animals were desperately struggling and throwing themselves about, I have contrived to plunge the lancet into their temples, and allowed them to bleed *ad libitum*, regardless of the quantity lost, paying attention, in fact, only to effects. In several instances, to the surprise of all around, the frantic patient, from kicking about in a pool of blood, jumped suddenly and unexpectedly upon his legs, and, after shaking himself once or twice, appeared, as it

were, by magic, almost all at once restored to his senses. Mr. Rickwood has likewise related a case which tells eminently in favour of preferring blood-letting from the temples. Mr. R. was sent for to attend a mare, who had just come in with the Leeds coach, and was seized with staggers. She was wandering about, with dilated pupils and laborious respiration, and symptoms of palsy of the hind extremities. She was bled to twelve pounds from the jugular vein, and had administered an aloetic drink and frequent clysters. The symptoms increasing, both temporal arteries were opened, from which she was bleeding rapidly when Mr. R. was compelled to leave her. The bleeding continued until she became so exhausted as to begin to make a noise in breathing 'as a roarer would make in his gallop.' At length she fell; after which the symptoms began to subside, and in a few days she was sent home."

A black mare, who was attacked with phrenitis after concussion of the brain, had been bled copiously twice or thrice from the jugulars without any very apparent benefit. When Mr. Percivall visited her she was lying upon her side, flinging herself about in a state of frenzy, surrounded by spectators, who were betting any odds she could never rise again. He promptly plunged his lancet obliquely into one of her temporal arteries, from which instantly issued such a stream of blood that it seemed quite unnecessary to endeavour to turn her to puncture the other temple. She lay, rapidly and profusely bleeding, for some minutes, when, to the astonishment of all beholders and despairers, she suddenly sprang upon her feet, gave herself a rustling shake or two, and immediately commenced eating some hay which happened to be in her manger. In fine, from that hour she was a recovered mare.

Purgation for this disease has ever stood in such high repute with farriers that a common saying among them is: "purge a horse with staggers, and you cure him"; and this, like many other veterinary adages, appears to have been founded on sound observation. In fact, it is a practice pursued by every surgeon in brain affections, with the two-fold view of removing any source of irritation or cause for the head-affection that may exist within the bowels, and of indirectly abstracting blood by derivation and discharge. No surer or more effectual cathartic is known than aloes,

which is aided by the addition of calomel. It may be administered in ball or drench, as most practicable.

Decoction of aloes 1 pint.
Calomel $\frac{1}{2}$ drachm.

Warm the decoction, and stir in the calomel.

Or of

Purging mass $\frac{1}{2}$ ounce.
Calomel $\frac{1}{2}$ drachm.

Mix into a ball. A drachm of the farina of croton seeds may be used instead.

Mr. Percivall concludes: "It would be futile to give further directions where so much must depend on the circumstances of each individual case, and so much rest on the nerve and discretion of the practitioner."

Abscess in the Brain may be looked upon as beyond the reach of veterinary skill. Abscess in its general sense will be noticed under a separate head, and in the parts in which it occurs. Abscess in the brain is the result of external injury. It is usually the result of fracture of some of the skull bones. A small wound is sometimes seen after a runaway horse has dashed a vehicle to pieces. It heals, and there is no discharge. The mischief is within. Abscess is forming. In the picturesque description of Mayhew: "The horse becomes dull, as in sleepy staggers. It refuses its food, lies down, and after a time beats its head upon the pavement. Death ends its misery, and a small abscess, containing about half a drachm of healthy pus, is discovered in the superficial substance of the brain." Neither operation nor physic avail here. The only means of relief would be to afford an exit to the matter; but this is "past all surgery" of a remedial character.

VERTIGO (MEGRIMS).

As apoplexy, in the sense of human practice, can scarcely be said to be a horse disease, though scientific veterinarians have recognised a distinction between it and sleepy staggers, which seems sufficiently marked, we shall consider vertigo, or megrims, as its equivalent, and megrims as minor apoplexy, or rather epilepsy, in horse nosology. Megrim,

is known also to stablemen by the names of "sturdy" and "turnsick."

It frequently attacks horses during their work, particularly in harness; it is, however, now and then seen in hot weather, in the stable or at grass. When it seizes a horse in exercise he stops short, shakes his head, looks irresolute and wandering; in this state he remains for a few minutes, and then proceeds as before. In more violent cases he falls at once to the ground; or first runs round, and then sinks senseless; or the limbs may continue to move after consciousness is lost, when the animal thus affected becomes very dangerous. In either case the whole system appears agitated by strong convulsions. The horse may dung and stale insensibly. He sometimes is violent, at others more passive, but is equally unconscious to everything around. After remaining so a longer or shorter period, his faculties return, and he rises. It is frequently brought on by mechanical causes which produce a momentary congestion of the brain—as tight reining up, or the pressure of the collar in ascending a hill, which obstructs the return of blood from the head. It may also be occasioned by a morbid pressure produced by constitutional causes. Such are found in the plethoric, over-fed horse, particularly when subjected to long confinement.

The *Treatment* must be regulated by the cause. If it be mechanical, remove it, or the affection may become habitual. If plethora be apparent, purge; or give a course of mercurial alteratives, followed by relaxing medicines. It is said that covering the skull with a wet cloth will prevent megrims where the horse is subject to their recurrence. Of course, a horse liable to megrims is most dangerous to drive or ride.

PARALYSIS.

Palsy of the whole muscular frame is very unusual in the horse, except from actual pressure or irritation of the sensorium by blows on the skull, by portions of bone forced in, or by abscess in the brain. Sometimes it is constitutionally brought on by unknown agencies. Paralysis of one side is of very rare occurrence. Paralysis of half the body, most frequently of the hinder parts, is sufficiently common, and is either primitive or secondary.

The treatment of paralysis must, in a great degree, follow

the cause. If mechanical injury have occasioned fracture in any part of the spinal column, the case is hopeless. If the injury be less severe, it is possible that extravasated blood only, or serous deposit, or coagulable lymph are effused into the spinal canal, and disturb the functions of the part; in which case, topical applications are requisite to encourage an absorption of the obstructing deposit. When the paralysis can be traced to some visceral affection, or to disease of the stomach, kidneys, or bladder, the result is not necessarily unfavourable, although our hopes of a recovery are lessened. We should, in these cases, primarily attend to the exciting cause, if it can be discovered. But when there is loss of sensation without loss of motion, the limbs being cold and the horse insensible that he is in possession of such parts, and moving them only when absolutely forced; or otherwise, when they are entirely paralytic, and yet sensitive, it is probable that the nervous irritation originates within the spinal canal. Here, though we may with propriety use external stimulants, there will be but small prospect of success. Of internal remedies, strychnia has been found sometimes useful, in one grain, gradually increased to three grain doses; and it may be united with other tonics, as gentian, or aromatics. This, with purgatives as required, blisters, sheepskins, or a charge over the loins, has occasionally effected a cure, when the paralysis has been confined to the hinder limbs only.

TETANUS—LOCKED JAW.

Tetanus differs from other spasms in its permanency, its rigid contraction being rarely alternated with periods of relaxation. *Locked jaw*, so called from the persistent closure of the mouth, is the result of a morbid irritation of the whole nervous system acting on the brain, and thence by the excitor nerves reflected on the motory nerves. As this irritation is capable of pursuing "a retrograde course along the spinal marrow," a wound in the hind foot or hock is almost as likely to induce a locked jaw as one in the fore foot.

The first is produced by external injury; the second develops itself from various obscure or conjectural causes acting on the spinal cord and brain. Cold, caused by evaporation; standing still after a severe burst in the

hunting-field ; the dripping of water from an unsound roof, or the eaves of a hayrick or shed when the animal has been at grass, have been known to produce it. Worms, severe visceral affections, and even bots (when producing solution of continuity in the lining membrane of the stomach) are assigned as causes of the tetanic spasm.

In traumatic tetanus, upon pushing our inquiries, we may gain clearer information. There has, perhaps, been some slight injury ; a nail has been driven too close ; or a piece of glass has cut the foot ; or a blow has been lodged just above the eye ; or the knees have been recently broken ; or the stable fork has been used to strike the horse about the legs, and the point of it has only gone a little way into the back sinews. Sometimes an operation has been recently performed. Let not the proprietor blame the surgeon, if such should have been the case. Any puncture, however small, may produce tetanus ; but it may not follow the most severe and the largest wounds. No means we know of can originate it ; no care or skill can prevent its appearance. We may learn, however, that the tail has been docked or nicked ; the wound has very nearly healed, and it may look as well as could be desired ; or it may all at once have assumed an unhealthy appearance, a thin ichorous fluid may be discharged from it, and there may be a spongy appearance around it. Most commonly the wound nearly heals ; almost at the moment of closing, without any seeming unhealthy change of appearance, this alarming affection bursts forth.

The fibril of some nerve has been injured ; irritation ensues. It rapidly spreads along the various branches of that nerve, and, through the spinal marrow, affects the whole body.

Symptoms.—One of the first observable is a certain stiffness about the head, and a peculiar mode of standing. Upon raising the head, the haws of both eyes are pushed out, giving to the countenance of the animal a strange expression ; but sooner or later it extends all over the body. By the tetanic action the haw is drawn partly over the globe at the same time that the tension of other muscles gives the eyes a vivid appearance, which ill accords with the more placid effect of a protruded haw. The jaws are not invariably fixed, though from their being generally closed springs the popular name of the disorder. As the

disease extends over the voluntary muscles of the trunk and extremities, the appearances are distressing in the extreme. The head is raised, the ears pointed forwards, the nostrils dilated, and the nose is protruded; the legs straddle wide; the tail is cocked, and quivers; and the abdominal muscles are drawn tight over the belly, giving to the horse an appearance of having just completed some extraordinary exertion.

The complaint presents a few moments of imperfect relaxation, sometimes from the extreme contractions of over-strained muscles, while profuse sweats mark the distress of continued convulsion. The circulation is, in most instances, at first not much affected; but as the disease increases, the pulse quickens and becomes tremulous and irregular. The respiration, also, gradually becomes hurried and intermittent; costiveness is usually present, and the urine is sparingly voided. In this state of suffering the animal may remain from six to ten days, when, worn by inanition and irritation, he dies in convulsions. At others, either from remedies or spontaneously, the contractions give way slightly; feeble attempts are made to eat; the limbs become gradually under the action of the voluntary muscles; and a slow recovery takes place. Post-mortem examination shows no change from the healthy state, except some inflammatory appearances in the lungs or intestines, one or both.

Treatment.—There are many cases narrated in veterinary books in which some modes of treatment of very opposite kinds have been practised with success. Some bleed largely, that they may gain the full advantage of this sedative influence. This depletion is followed by strong purgatives, and then the disorder is attacked locally by a blister, from the poll down to the rump, the sides, and, in some cases, all over the belly. By this system of counter-irritation, they tell us, they have overcome the original affection of the spinal cord. Setons, too, have been inserted along the whole course of the spine; but they have not proved efficacious. Sheepskins, applied warm, from the poll to the tail, have been found to give more relief, and are certainly more humane. Docking and nicking being barbarities fortunately out of date, we may forget the treatment given in the older veterinary books, so often called for by tetanic attacks from those cruel operations.

For ourselves, we do not advocate the severe treatment as necessary. The pulse is not usually accelerated in tetanus; bleeding, therefore, is not in every case indicated. The bowels are not invariably constipated; and purgatives are not required. The benefit of violent counter-irritation is not demonstrated; its employment, therefore, is not justified. The best practitioners doubt the efficacy of the active tortures of the old school, and think that perfect quiet is of more use than violent medicine. If the horse be costive, administer a purgative, and a bold one; because an ordinary purge will have no effect during the existence of tetanus. Sedatives are now indicated. Two drachms of opium, with one drachm of camphor, as a first dose; and one drachm of opium and half a drachm of camphor (with the same drugs as a clyster), have been found serviceable. The subjoined will be found a powerful compound:

Powdered opium	.	.	.	.	$\frac{1}{2}$ ounce.
Sulphuric ether	.	.	.	.	1 ounce.
Camphor	.	.	.	.	2 drachms.
Tincture of aconite	.	.	.	.	1 ounce.
Spirit of turpentine	.	.	.	.	2 ounces.
Strong ale	.	.	.	.	1 pint.

Mix the turpentine with the yolks of two eggs, then the other ingredients, and give in two doses, at the interval of two hours; and repeat if the symptoms do not mitigate.

Then place the animal where it cannot be disturbed, and take care to visit it as seldom as possible, the door being locked, the horse left alone, and every precaution taken to prevent the slightest noise. The absolute quietude thus obtained has been found to be of more service than anything else; and the horse which has thus been shut up in silence has more frequently recovered than the one which has been continually annoyed under the pretence of assisting its restoration.

As for food—the horse is not able to take any solid nourishment; but he may have a mash more than usually wet in his manger, and a bucket of gruel may be slung in some part of the box, from either or both of which he may, perhaps, contrive to extract a little nourishment. The appetite of the tetanic horse rarely fails him. Though he may be unable to eat, he will, under the influence of hunger,

manage to imbibe enough for his support. Even if he makes no attempt to touch that which is placed before him, he should be left some days before any effort is made to drench him; and if he takes only a little nourishment, a further period should elapse before he is annoyed by forcing food upon him. Should he, however, appear to be losing strength, and to be sinking, he must then at every hazard be supported.

Should it be possible to insert a small horn or the neck of a small bottle between his tushes and his grinders, almost any quantity of gruel may be given him; and when he is, in a manner, starved, it is interesting to see how eagerly the poor animal will take the nourishment which is attempted to be given to him in this way. The dreadful cramp of the muscles of his neck should not, however, be forgotten; and the gruel should be given to him as gently as possible, and without elevating his head more than is absolutely necessary. Frequent injections of arrowroot or gruel may also be thrown up. The ordinary horse catheter, with Read's pump attached to it, will enable any amount of gruel to be thrown into the stomach, not only quickly, but without the necessity of elevating the head. The catheter is simply passed up the nose, along the floor of the nasal chamber, and, being pushed onward, it will enter the gullet. When the tube is inserted its full length, the fluid may be injected. This plan answers admirably, subjects the horse to little annoyance, and causes but small disturbance.

In a disease of this nature, the humanity and patience of the attendant must be exerted. These virtues will aid him more in the end than all his science, however learned he may be. The disease may terminate quickly. We have known a horse to die of it in less than thirty hours. So speedy a close, however, is rather unusual. The animal with idiopathic tetanus often lingers. It occasionally happens that the horse does not begin to amend until ten or twelve days have elapsed, and in one case a month passed without more than an occasional remission of the symptoms. The treatment was, nevertheless, persevered in, and the animal perfectly recovered.

When the horse does begin to get better, not a particle of medicine should be administered. By giving tonic medicines much dangerous excitation may be produced. The

best tonic is nourishing food; and even that should be supplied with caution. Green meat will in these cases be useful. If the weather, however, will admit of it, a run for two or three hours every day will be of essential benefit.

RABIES, OR HYDROPHOBIA.

The symptoms of rabies in the horse are the only important points in the present state of veterinary knowledge. Curative means are unknown. It is never spontaneously developed in the horse, but induced by the bite of a rabid dog. Mr. Youatt says: "The earliest and most decisive symptom of the near approach of rabies in the horse is a peculiar spasmodic movement of the upper lips, and particularly of the angles of those lips." Close following this is a depressed and anxious countenance, and an inquiring gaze, suddenly lighting up, and becoming fierce and menacing at a slight noise, or the approach of a stranger. Then comes an irrepressible desire to attack and bite at any person or animal within reach of the teeth. Then comes an almost systematic demolition of rack, manger, and stable fittings; and the poor wretch lies snorting and foaming amidst the ruins, paralysis of the hinder extremities incapacitating him from further mischief by kicking and plunging. The disease proves fatal in from three to six days. When the bite of the rabid dog is early known of, and can be found, of course, thorough cutting out, and the actual cautery, will save the animal. Mr. Spooner relates several cases of this. When, however, rabies has developed itself, treatment is useless; and humanity dictates that the animal should be destroyed without delay.

STRINGHALT.

This spasmodic contraction of some one or more of the flexors of the hinder leg, is, like most nervous disorders, of obscure origin. It is seldom seen in the fore leg, though an instance is now under our own observation. It is not a lameness, as the other leg does not sink, and the rider cannot feel it as he does the "dropping" in hock disease. The animal is useless as a racer, as he cannot control the voluntary nerves for a start till he has gone through his preliminary jerks and whippings-up of his leg. It is not

usually developed except in the adult horse. Professor Spooner attributes it to a pressure or defect of the great sciatic nerve which supplies the muscles of the hinder extremities. It is correspondent to chorea, or St. Vitus's dance, in man. There is no treatment available. Stringhalt has been decided *not* to be unsoundness; and we often see instances where this singular spasm is merely momentary at going off, disappears, and the horse has a more than ordinary amount of strength and courage.

II.—Diseases of the Eye.

GLASS EYE—SIMPLE OPHTHALMIA—SPECIFIC OPHTHALMIA (MOON BLINDNESS)—CATARACT—FUNGOID GROWTHS—OBSTRUCTED LACHRYMAL DUCT—WARTS.

The eye of the horse is exceedingly liable to disease. The "haw" (*membrana nictitans*), at the inner corner of the eye, is, in health, a thin, slippery membrane, thicker or more cartilaginous towards its base, where it is embedded in fat; its action is to remove dust, insects, etc., which may have fallen on the cornea. It is no unusual thing for a thickening of this part to take place, and it will then protrude itself on the fore part of the eyeball. In this disease the retractor muscle pulls back the eye to protect it from the irritating effect of the light, and this thickening of the haw pushing it forward, and the adjacent parts being also thickened, no retraction can take place.

The olden practice of cutting out this is absurd, and ought never to be resorted to. Ignorant farriers have, in this state, taken the enlarged haw for an extraneous excrescence, and cut it out, the eye, consequently, being left unguarded. Bleeding, gentle physic, and cooling applications, will effect a cure.

GUTTA SERENA.

This disorder, called by farriers *glass eye*, from the peculiar greenish, glassy appearance it assumes, is dependent on a paralysis of the optic nerve in its expansion on the retina. This, however, is disputed by some, who consider it to arise from inflammation, by which coagulable lymph is effused over the optic nerve, rendering the retina

insensible to the stimulus of light. Both may be right in different cases. It is certain, however, that irritation of the brain produces amaurosis, and it often follows staggers. In this disorder the horse shows blindness in his *actions* rather than in his *eyes*. He lifts his feet high, moves his ears quickly, and shows himself anxious to supply want of sight by the exercise of other senses. A simple test is waving the hand pretty close to the suspected eye, when, of course, there will be no winking. We have, however, seen a cunning horse-dealer who could make a blind horse wink by the peculiar manner in which he drove the air upon the eyeball and lid while bringing down his hand. We have also seen amaurosis supervene temporarily while the mare has been with foal, which would seem to point clearly to a nervous origin.

In *gutta serena*, local applications are of little service. Bleeding from the jugular veins, calomel and opium, or in some cases strychnia, may be tried.

SIMPLE OPHTHALMIA.

This is common or accidental inflammation, and has generally its origin in a mechanical cause—as blows, injury of the conjunctiva from a whip-lash, hay-seeds, or other matters within the eyelids not being removed by the nictitating membrane, and the like. It is occasionally the consequence of a common attack of cold.

Simple inflammation of the eye looks outwardly an affection of the conjunctiva only, whereas specific ophthalmia involves the internal parts of the eyeball. Another distinction is, that in specific ophthalmia there is symptomatic fever, loss of appetite, staring skin, and constitutional disturbance. Both disorders, however, are alike in impatience of light, in distension of the vessels of the haw, and sometimes in its extreme protrusion. The cornea, too, is often opaque. From that sympathy which is found to exist between double organs, even when the affection has been entirely brought on by violence done to one eye, the other will by sympathy become affected also, but in a minor degree. Such liability should be borne in mind, as a mistake in this particular might lead the practitioner into important error.

Treatment.—First turn up the eyelid carefully, if the

cause is not apparent, and remove anything which may have intruded itself. Wash the eye with tincture of opium and a pint of cold water, laying a wetted cloth also over the eye. If the inflammation is considerable, lance the eye-branch of the angular vein, and give the horse some food of which he is fond upon the ground. This will encourage the bleeding. If blood does not come freely, bleed also from the neck, and give a dose of physic. If the case is obstinate, and a film appears upon the cornea, take two grains of lunar caustic (nitrate of silver), mix in two ounces of water and touch the eye over with a camel-hair brush. The next article will contain the treatment of the disorder in its constitutional form.

SPECIFIC OR PERIODICAL OPHTHALMIA.

This destructive disease of the eyes, by which a valuable animal is often reduced in price from a hundred guineas to a tenth of the amount, is, as already remarked, distinguished from the simple disorder by the constitutional disturbance which accompanies it, and its attacking the internal structure of the eye, the outer covering being merely involved by sympathy. Among farriers this disease used to be termed *moon-blindness*, from a superstition that the periodical attacks were influenced in their monthly return by the moon. The period of a monthly recurrence is, however, merely imaginary.

Symptoms.—These generally appear suddenly. In the evening, perhaps, there may have been nothing amiss, but on the following morning sometimes both eyes, but usually one eye only, is found nearly closed and suffused with tears; there is great impatience of light. Indeed, it is somewhat difficult to induce the animal to open the lids sufficiently for examination, and when he does so, the pupil is found exceedingly small, so as to keep out the light as much as possible. The cornea is not so opaque as when the inflammation is brought on by an external injury; but on looking into the interior of the eye we observe that it has lost its brightness. The attendants of the horse usually report that some hay seeds must have got into the eye, or that he must have injured it in some way; but a proper examination will detect the difference, and this will be

greatly assisted if we can ascertain that the horse has had a previous attack.

The eye is remarkably retracted; and this retraction forces the haw over a portion of its globe, where it is seen swelled and preternaturally red, from its participation in the disease. The inner lining membrane of the lids will be found highly vascular and hot, pouring forth, in most instances, a flood of tears, which continually trickle down the face; and the whole conjunctiva will present a network of turgid red vessels over its opaque white surface. If the cornea be not too opaque, or too much inflamed, we shall discover the aqueous humour thick and muddy also; the iris and choroid will likewise be found altered from their natural colour. From this state it follows sometimes that a central yellow patch is discovered at the bottom of the eye; in which case matter has formed, from the usual suppurative inflammation; but it most commonly becomes absorbed again, and sometimes very speedily. In very acute cases, however, there is a large deposit of fluid, which disorganises the eye. The rapidity of the changes in the state of the eye is a very marked feature of specific ophthalmia; and the transition from an almost opaque to almost a clear state of the cornea, and from a simple dimness in the appearance to a perfect opacity, sometimes occurs in a remarkably short space of time. We have seen an eye opaque within and without, which was merely dim the night before; and perhaps within twelve hours it would again have almost become transparent without any apparent medical agency.

Specific ophthalmia commonly attacks only one eye in the horse, leaving the other totally unaffected, or, at most, only sympathetically involved. Worthy of remark is the complete and sudden change which often takes place in this disease. From being in a very aggravated state of inflammation in one eye, it will suddenly shift its seat to the other, leaving the original much amended or nearly well; and it will not only thus change about from eye to eye, but may likewise either spring from, or be transferred to other organs.

The eye or eyes, however, thus far recovered, seldom remain very long sound, but often are again subject to the diseased action, and the complaint recurs with all its pristine violence. As these attacks are repeated, they

leave the eye less and less transparent. The remaining opacity forms a nucleus for future and rapid accretion: sometimes, however, it will remain stationary for a long time, and now and then it never enlarges. But usually repeated inflammatory attacks succeed each other, and the whole crystalline lens at last becomes opaque, when the disease takes the name of cataract, in which almost all these inflammations terminate.

Causes.—Plethora acting upon a weakness of the parts, often hereditary, seems a cause of periodic ophthalmia, to which the horse is more liable than any other domestic animal. The fumes of ammonia in close, dark stables, stimulating food, or severe work and bad food, may equally induce the disorder, which seldom appears before the fourth year, or, for the first time, after the seventh. Harness horses are more often attacked than saddle horses; and it has been observed to be more frequent when many horses are kept together than in gentlemen's studs, which may be due chiefly to better ventilation.

Treatment.—Though the immediate attack may be removed without great difficulty, its recurrence is not easily guarded against; resembling, in this, scrofula in the human subject. General bleeding, warm fomentations (one dozen poppyheads in two quarts of water) at first, and then the cold lotion. (See *Lotions*, in List.) Stimulants, as tincture of opium, or the nitrate of silver wash, may also be applied with advantage.

The food should all be boiled, and of the most supporting kind—roots of all kinds, malt, oats, ground beans, clover, hay, linseed, etc., etc. This will probably sufficiently open the bowels; but should it not, avoid giving more than one drachm of aloes night and morning, and even continue this quantity no further than is imperative to render the bowels soft, yet by no means to induce watery stools.

With regard to physic, anything administered must be of a soothing and supporting description; therefore give, night and morning, during the violence of the attack, the following drink:

Sulphuric ether	.	.	.	.	.	1 ounce.
Laudanum	.	.	.	.	.	1 ounce.
Powdered colchicum	.	.	.	.	.	$\frac{1}{2}$ ounce.
Stout	.	.	.	.	.	1 quart.

Should the inflammation run very high, the superior branch of the angular or facial vein, called the eye-vein, may be opened as before directed.

On recovery, remove the horse to a high, clean, cool stable, where there are no irritant exhalations from excrement. Listen to no quacks who pretend to infallible remedies for the remaining defects visible in the eye, should any remain. You may now and then strengthen the eye by a little cold lotion of crude sal ammoniac and red rose leaves, or laudanum and rose-water, if you must be doing something ; but don't let farriers put their ruinous messes into the sore and sensitive eye.

CATARACT.

Cataract is often the result of specific ophthalmia. Cataract is total, partial, or consists of specks on the capsule of the crystalline lens. In the first the lens is quite white.

In other cases that have stopped short in their career, spots only of an uncertain size are visible on the lens or upon its capsule ; a white opaque spot on either is called a cataract. Cataracts, however, can and do exist in eyes that have never been subjected to ophthalmia ; and as they make their appearance without any apparent cause, so they occasionally will depart without any treatment. Blows sometimes produce them ; and when caused in this manner they are for the most part stationary. However, in cataract following ophthalmia there is generally much derangement of the other internal parts of the eye, particularly of the iris, which sometimes adheres to the lens, at others to the cornea ; and in some cases its pupillary opening is so reduced by contraction as to render the cataract hardly perceptible. This internal derangement greatly prevents any benefit being derived from the operation of couching, added to which a horse so operated upon, to have perfect vision, would require to wear spectacles. It has, however, been suggested that even without glasses so much benefit might be gained from it as to prevent accidents, like running against posts, falling into pits, etc. This, nevertheless, would be greatly overbalanced by the imperfect vision, which would render the horse so operated on very dangerous from his liability to shy.

Treatment.—Cataracts of all sizes and shapes are best

let alone. Should they cause the horse to shy, blind the eye or eyes in which they may exist. The measures generally pursued, with very doubtful success indeed, are the blowing of mercurial preparations into the eye, the application of caustics, either in powerful solutions or in substance, to the organ, and, in short, all kinds of cruelties more likely to favour the formation than to cause the dispersion of cataract.

FUNGOID GROWTHS OF THE EYE.

Small polypous excrescences occasionally form on the globe of the eye; fungus-like projections are also met with on the transparent cornea, sometimes from injuries, at others apparently of spontaneous growth. When these are evidently of a polypous, or merely fleshy nature, the knife and a styptic takes them off and stops the hæmorrhage. If fungoid and bleeding, wash with chloride of zinc in solution; and red precipitate ointment, thinned with Florence oil, may be painted over it daily with a camel-hair pencil. Observe, if the growth is within the ball of the eye (when a bright yellow substance will be visible on its interior base), extirpation of the eye is the only remedy. It has been often performed, is not difficult, but so barbarous, and withal useless in an animal of which such services are demanded, that a speedy death is the more humane and advisable alternative.

In lacerations of the eyelid, from a blow against a nail, hook, or other projection, obtain union of the parts by a suture of thread, and it will generally heal from the first intention. Remember, in cases of laceration, simple cold water is better than Goulard's, or evaporative lotions.

In cases where the injury reaches the eyeball itself, and there is active inflammation, the activity of treatment must correspond. Bleed from the head; give a strong purgative and cooling drench; apply anodyne fomentation (boiled poppy heads) to the eye with soft cloths or sponge. When the physic has operated, separate the eyelids and examine the extent of the injury. If the iris should protrude, touch it with lunar caustic, or butter of antimony, to destroy the projecting portion, which causes agonising pain, and to deaden the morbid sensibility of the parts. Apply the caustic till the protrusion is got level with the cornea, and

use an astringent wash or unguent—(E) (F) (G), *Astringents* (see *Horse Medicines*)—to repress the discharge of pus, and cleanse the sore. White vitriol, one ounce, twenty drops of laudanum, and water at discretion, is a good eye-wash in such a case.

OBSTRUCTION OF THE LACHRYMAL DUCT.

This disease, called “watery eye” by the farriers, is occasioned by the stoppage of the small canal leading from the eye to the nostril, at the inner corner of the upper and lower eyelids, and ending in the dark skin of the nostril on the inner side. This minute sinus obstructed, the tears flow out upon the face of the animal, excoriate the flesh, and make bald places and sores. A bougie, or, better, a thin elastic probe of catgut, a foot long, may be passed through the channel, an assistant holding open the eyelids; a mechanical cure is affected.

WARTS.

The eyelids are sometimes affected with warts, which are very irritating to the animal in consequence of his rubbing them on some prominent object; this causes them to bleed, and increases their number.

They should be cut off with a pair of sharp scissors, and the roots touched with nitrate of silver (lunar caustic) or blue vitriol.

III.—Diseases and Injuries of the Teeth, Palate, Tongue, Nostrils, and Pharynx.

The “dentistry” of the horse will not occupy much space. Teeth disorders are the results of domestication, artificial diet, irregularities in feeding, and injury from the iron bit.

The teeth are often troublesome to the domesticated horse. Sharp edges on the outer side of the upper molars and the inside of the lower—one wounding the cheek, the other the tongue, and causing the horse to swallow his food unmas-ticated, or producing “quidding” (*i.e.*, throwing out his food in balls from the mouth) are a serious though apparently a trivial defect. The tooth-rasp, which requires no description, is the remedy; and the same when one of the grinders

stands higher than the others. Sharp, ragged teeth have been often overlooked, and the poor animal physicked and doctored for all sorts of internal complaints, even ulcerations in the mouth and lampas, when a scrutiny of the teeth and a rasp were all that was required for the restoration of the services of a valuable animal.

PARROT MOUTH.

By this appellation horse people understand what dog-fanciers call "overhung," *i.e.*, a mouth so formed—or rather so malformed—that the upper jaw projects considerably beyond the lower; so much that the inferior incisor teeth, instead of meeting the upper, come in contact, when the mouth is shut, with the bars of the palate, while the teeth of the superior jaw have no opposing surface whatever, unless the lower lip can be so regarded. This deformity is not of very common occurrence. The horse has less power of gathering up his hay and corn with his lips, and of the retention of the food while being transferred to the grinders, as is seen by the animal, while feeding, wasting part of his corn and slobbering. In grazing, the parrot mouth is yet more disadvantageous, much difficulty being experienced in nipping off the grass; this seems the chief objection to the purchase of such a horse. There is, of course, no remedy for such a malformation.

INJURIES TO THE MOUTH AND TEETH.

Colts, while breaking, are often hurt in the mouth by pressure of the bit; and the lower jaw of many horses is injured by the snaffle between the teeth and first grinder. When severe damage is done, the bone exfoliates, or abscess is formed in the jaw. In this case mashes should be given, and to prevent the formation of sinuses, the bone cut down upon, and chloride of zinc, one drachm, water one quart, and a little essence of aniseed syringed into the opening several times a day. Don't let the wound heal, but keep open with the knife, so that the exfoliated bone may come away freely when grasped by the forceps.

Injuries under the tongue and on the roof of the mouth are sometimes occasioned by the "port" of the bit. If there is much inflammation and tumidness, bleed locally,

use depletory measures, and a weak lotion of alum and laudanum.

Excoriated Angles of the Mouth.—These arise from bad driving or riding, “jagging” or “sawing” the animal’s mouth. The treatment is obvious. A lotion of chloride of zinc, and water, one quart, applied with a soft cloth, and dress with a little alum, honey, and water. We chiefly mention this, because vile and disgusting animal fats as ointments are often applied, to the horror and nausea of the cleanly and delicate animal.

INJURIES TO THE TONGUE.

In the clumsy administration of a ball the under part of the tongue is sometimes lacerated, which renders feeding painful, and makes the horse slaver and froth at the mouth. This may be cured by a solution of alum, thrown in with a syringe.

The practice of tying a horse’s tongue to prevent him from running away may not be frequent, but it is done, and the loss of the tongue may be the consequence. Mr. White, in his “Farriery,” says: “Three cases of this kind I have met with. One I was told of by the person who did it, and who cut off the swollen part of the tongue to relieve the animal from his intolerable sufferings, the ligature being buried in the enormous swelling that had taken place. Two others I have heard of in which the tongue was literally drawn out by the roots. The most common manner in which the tongue is wounded is by the horse hanging back when he is tied up with a coil of the halter in his mouth and over the tongue; or, as it is vulgarly termed, with a ‘chaw’ in his mouth.” On this Mr. Spooner remarks in a note: “The editor has met with many cases in which the tongue has been divided in this manner, and a good portion of it cut off; but though the horses for some time were unable to take their accustomed food, yet the remaining portion of the tongue gradually accommodated itself to the mouth, becoming flatter and flexible, and at length capable of gathering up the food apparently as well as before.” When the tongue is partially divided, sutures must not be used. Metallic sutures wound the mouth or cheeks; silk or thread soon sloughs out. The tongue must be left alone after cleansing

with a styptic lotion (zinc is best), and the horse fed solely on gruel.

LAMPAS.

We have here an opprobrium of farriery, not but that the older practitioners of human medicine have their barbarities and blunders on record. Lampas is a swelling of the roof or bars of the mouth or palate, near the front teeth. Blaine, forty years ago, raised his voice against the barbarous practice of burning the horse's mouth with a red-hot iron for this "imaginary disorder," as he properly called it. Percivall, years afterwards, says in despair that, "in the army you can hardly prevent the shoeing smith burning for lampas."

Lampas occurs from an early age, throughout colthood, up to five years, when the horse's mouth is perfect. It arises from fever, the mastication of dry food, and, of course, with a sore mouth, the poor creature is "off his feed." The groom looks into the mouth of the animal, when, perceiving the bars to be almost on a level with the incisor teeth, he pronounces his charge to have the lampas, and takes the poor creature to be burnt within its mouth accordingly. It is true the animal has recovered its appetite by the time the effects of the burn have passed away; but so it would have done had no hot iron been cruelly employed. The fact is, the young animal is then cutting a molar tooth, and a day or two having elapsed, all the fever and pain occasioned by the process would have been over. "No man," says Delabere Blaine, "should allow his horse to be burnt for the lampas. It is a torturing, an idle, and a wanton operation, and tends rather to do harm than good. If an old horse be reported as having the lampas, examine his mouth, and something may be found wrong with his grinders, or, to a certainty, the cause is to be sought in another part of the body than the roof of the mouth."

NASAL POLYPUS.

A pear-shaped body, filled with blood-vessels, which pass through its stalk or peduncle, is often found on mucous tissues; it is called polypus, from an erroneous supposition that it has many feet, or roots. Polypi should never be

sliced off in the old way of farriers, but extirpated by a single cut, or by ligature or torsion. Torsion is a good method, and not so painful as might be supposed; for the polypus has little sensibility under the knife or scissors. A pair of scissors, with sharp curved claws, are sold by surgical instrument makers for this purpose. The polypus is grasped by these claws, which are then drawn down to get a firm hold, and twisted round several times; this twists the stalk, or peduncle, and ruptures it, when it comes away.

The twisting should be done quickly, and the bows of the scissors secured together by a piece of soft wire as soon as a good grip of the tumour is got by the claws. Ligature is more tedious; but there is no bleeding. It is, however, doubtful whether it is less painful than torsion. The ligature is a piece of fine zinc wire, a yard and a half long, doubled, and the two free ends passed down a small tube, leaving a loop at the doubled end large enough to put over the polypus; then draw the loop tight on the neck or stalk of the polypus, and secure it to a cross piece of wood at the bottom of the tube. The horse is to be carefully reined up, and next day the tumour will feel cold; if not, give the cross piece another turn, and tighten the wire. Watch the tumour, and, when it appears quite dead, twist the pedicle gently, and it will give way.

NASAL GLEET.

This distressing affliction must not be confounded with glanders. Horses taken up from grass are found with the bones of the face swollen and soft. A blow on the facial bones is sometimes the cause. Pus gathers in the cavities of the turbinated bone, and there corrupts. In extreme cases these cavities may be cleansed by the use of the trophine, by which a circular piece of bone is cut out; an elastic probe, armed with a tape, inserted and brought out at the nostril, thus establishes a seton, or gives a passage to syringe out the pus. To describe such a purely professional operation in a compendium like this would be out of place. When nasal gleet, however, will not yield to medicine, dilute injections of warm water and chloride of zinc, or of creosote, the animal is valueless, and should be destroyed.

The ball recommended in this disease is copaiba balsam,

3 drachms; cubebs, half an ounce; powdered cantharides, 3 grains. Mix. A solution of sulphate of copper, blue vitriol, or the muriate of barytes, once supposed to be a specific for glanders, introduced in small quantities into the water the horse drinks—two drachms of the salt to a quart of water—may be put in the pail or bucket. The steam vaporiser, for steaming the nostrils, is also to be recommended.

DISORDERS OF THE PHARYNX.

The organs of swallowing may be injured by the practice of giving balls, especially when they are large or hard. A morbid state of the pharynx is thereby induced, which renders deglutition difficult, and sometimes impossible; the lower part of the pharynx acquiring a morbid irritability, which causes it to contract upon the approach of the food, and return it into the nostrils, or into the mouth, where it is often remasticated, and at length thrown out into the manger like a quid of tobacco. Such horses have been named “quidders” by dealers, and are considered of little or no value; such cases are often incurable, and sometimes so because not understood. Were the horse, in the early stage of the disease, kept a few weeks on gruel and bran mash, and then turned to grass, the muscles of deglutition would sometimes gradually recover their lost power.

CHAPTER XIX

THE HORSE IN SICKNESS AND DISEASE

DISEASES OF THE AIR-PASSAGES—BRONCHITIS—PLEURISY—
INFLAMMATION OF THE LUNGS—ROARING—THICK WIND
—BROKEN WIND—SPASM—STRANGLES, ETC.

IN considering the important class of disorders which attack the organs of breathing in the horse, we shall divide the inflammatory affections of the air-passages into three sections; a division justified by recent discoveries and the improvements of modern practice, thus:

1. *Bronchitis*; inflammation of the mucous lining of the bronchial tubes and trachea.

2. *Pleurisy*; inflammation of the membrane (the pleura) covering the lungs and lining the chest.

3. *Pneumonia*; inflammation of the substance of the lungs.

BRONCHITIS.

Bronchitis may be *acute*, *chronic*, or *epizootic*. The causes of bronchitis may be set down as the same which induce common catarrh or cold. Most frequently the extension of inflammation is from the throat downwards. It is often a very insidious disease, though sometimes slight, and free from danger. In many cases it creeps on so gradually that it fails to attract attention until too late. It is not uncommon for a cough and a slight diminution of the appetite to be the only symptoms noticed for several days; although, if the animal were examined at this stage, he would be found to have a quickened and a disturbed pulse with slightly laborious breathing, with a slight discharge from the nostrils. The disease, after creeping on in this manner for several days, sometimes exhibits on a sudden the most dangerous symptoms, the pulse being exceedingly quick and weak; the respiration greatly accelerated; the membrane of the nostrils and eyelids of a red colour; and the discharge from the nostrils diminished or suspended. When bronchitis presents itself in this form, it is frequently fatal—the membrane of the nostrils becomes of a purple hue, and death too frequently closes the scene in the course of a week or ten days.

The disease fortunately does not always exhibit itself in this severe form. We often find the first symptoms are a loss of appetite, dullness, discharge from the nostrils, and cough; it can only be distinguished from a common catarrh by the quickness of the pulse (advancing from 50 to 70), and the disturbance of the breathing. From common inflammation of the lungs it may be distinguished by the warmth of the surface and the extremities which usually prevails, and by the more moderate acceleration of the pulse and respiration. It should, however, be observed that it is by no means uncommon for this disease to be complicated with inflammation of the lungs; and when

such is the case it is the more dangerous. It is sometimes attended with costiveness—the dung being often offensive and coated with mucus; and yet the membrane lining the bowels is so irritable as to be violently acted on if physic is administered. On applying the ear to the chest, instead of the healthy murmur, we generally hear a wheezing or sucking sound; sometimes one resembling brickbats being rolled down from a considerable height is audible, owing to the air struggling with the mucus; but this, of course, will depend very much on the quantity of secretion which is effused. The breath is warm, and the mouth usually hot and dry.

Treatment.—One of the sequelæ of chronic bronchitis is thickening and change of structure in the air-passages, from which decreased capacity follows, with “thick wind” and wheezing. There may be a seeming necessity for bleedings, yet, violent as the symptoms may appear, the patient will not often bear loss of blood. Here, therefore, more than in any other disease, will appear the propriety of the caution elsewhere recommended when treating of the operation of bleeding. No fixed quantity should be abstracted. The operation should never be left to the assistant, but should take place under the practitioner’s own eye, in order that the bleeding may be stopped on the very first indication that the system is affected. There is no rule which admits of so few exceptions as this: that a disease of the mucous surfaces (and this is one) requires prompt and decisive treatment, but at the same time very cautious remedies, from the rapid debility which is connected with all these affections.

Perhaps, after all, it is better bleeding should altogether be abstained from. Such a blood-letting as we dare hazard in bronchitis is not likely materially to affect the disease; while the smallest abstraction of the vital fluid is sure to tell with dangerous (perhaps fatal) certainty during the subsequent debility.

Although it will be desirable to relax the bowels, aloes will be dangerous, except in the quantity of one or two drachms, and not repeated; but it will be better to substitute a pint, or nearly so, of linseed oil, guarded by a drachm of chloroform, and to assist its action by clysters if there is costiveness.

Sedative medicine, such as the fever-ball, should be given

twice a day; digitalis, calomel, and tartarised antimony, each half a drachm, with three drachms of nitre, is a good formula. Mr Percivall prefers white hellebore to the digitalis; it is more active, but requires greater vigilance in the attendant.

Counter-irritation by means of setons or rowels in the brisket, or the liquid blister rubbed on the throat down the course of the windpipe, when the first acute symptoms have abated, are often attended with good effects. Mash, gruel, and green meat should form the food of the horse, but even these in stinted quantities.

PLEURISY.

It was formerly the practice to mix up this disorder with *pneumonia* or inflammation of the *lung*; but although in complicated cases the two are co-existent, yet in most pleuritis is marked and distinct, and examination after death shows that the substance of the lung itself is not involved. The pain of the inflammation of the fine smooth glistening membrane which invests the lungs is intense, every breath drawn or expired by the poor animal causing the irritated surfaces to crepitate in moving upon each other.

Symptoms.—The suffering of the animal is indicated by a constant pawing of the fore foot, and a looking round, slightly showing his teeth. The nostrils are dilated, as in pneumonia, to assist the difficult respiration; but their membranes are not much discoloured. Pain, on pressure of the sides, is intense; but the pulse is hard, full, and but slightly accelerated until suffering has weakened the system. If the symptoms do not become aggravated by the fifth day, a recovery may be expected. If, on the contrary, a thin, wiry, and rapid pulse, with sweats and restlessness come on, hydrothorax (or death) is at hand. Mr. Field thus enumerates the distinctive symptoms of pleurisy from pneumonia: "In the former the pulse is hard and febrile, in the latter, oppressed; the peculiar saw-like respiration in the one, the difficult and convulsive breathing in the other; the absence of intense redness of eyelids and nostrils in pleurisy, and its presence in pneumonia; the extreme pain of pressure in the former, and the comparative insensibility in the other; the coldness

of the extremities in pneumonia, the variable temperature of those parts in the other; the frequent lying down and getting up in pleurisy, and the obstinate standing up in pneumonia."

Treatment.—Mr. Field recommends the immediate abstraction of ten to twenty pounds of blood. A small dose of aloes (linseed oil is preferable), sedatives as prescribed in the last article, seton or rowel in brisket, and blisters on chest and sides. Mild diuretics when hydrothorax is feared.

PNEUMONIA (INFLAMMATION OF THE LUNGS).

When we consider how totally we have removed the horse from a life of nature to one of art, in which the lungs, more vascular than any other organs, are subjected in an extraordinary degree to the extremes of exertion and temperature, we cannot be surprised that they should in a great measure become the seat of acute inflammation.

The causes may be looked for in constitutional plethora, occasioned by high feeding, hot clothing, stabling with high temperatures, and accelerated exercise; all which render the lungs more susceptible to congestion, and less able to resist the effects of it. Among the various causes, alternations between heat and cold are probably the most common; and we have the more reason to believe that it is the alternations themselves which provoke the disorder, as we find that horses bear the extremes of both heat and cold, in different countries, with seeming impunity. Heat suddenly applied may be supposed to heighten the circulation generally, and produce congestion immediately within the lungs. Cold suddenly applied may act instantly also by driving the blood from the skin to the deeper-seated organs. A very fertile source of it is inordinate exercise, as regards quickness of progression, which wears out the vital activity of the lungs; thus pneumonia frequently follows severe runs in hunting. Cold, moist spring seasons are often marked with pneumonic attacks, which rage in an epidemic form.

Symptoms.—This disease sometimes attacks the horse suddenly, and he exhibits, with one or two shivering fits, the excited breathing which is symptomatic of the complaint; at others, it steals on, almost unobserved for two or three days. But whether the approach be sudden or retarded

the general functions are disturbed. One that first shows itself is the unequal distribution of heat, the legs and ears being much colder than the other parts of the body. The coat stares, the horse loses his appetite, is evidently uneasy, and occasionally looks gently round towards his ribs. In the early stages the nasal linings look paler than usual; but as it advances they become of a leaden hue, and although the general surface of the trunk may vary in its temperature, the extremities, as the legs, ears, and tail, and sometimes the muzzle, are found uniformly cold. Cough is by no means a pathognomonic symptom; many cases are without it. But when it does exist, it is at first short, dry, and frequent, and becomes eventually heavy, thick, and painful; occasionally some mucus with bloody striæ is thrown up in coughing, particularly when the bronchi participate in the affection. The respiration becomes disturbed as soon as the disease is formed; the first febrile attack will hurry it, but, the severity of that over, it becomes simply laboured. As the complaint increases, the pulse becomes still more oppressed and irregular, so as to present, at the region of the heart, nothing but the faintest flutter; the legs, ears, and muzzle feel still more intensely cold, although partial sweats may visit the carcass. The nostrils change to a still more livid hue; and the air they expire is chill. The mouth now becomes cold and pale, convulsive twitchings affect the breast, neck, and face, the teeth grate, and death ensues earlier or later, as the disease has been more or less rapid, occurring sometimes as early as the second or third day, but more often between the third and seventh, being also sometimes prolonged to the fourteenth or fifteenth.

The terminations of pneumonia are more varied than in most other complaints. Resolution is that most to be desired, in which the symptoms gradually subside, either spontaneously, or aided by the curative treatment. Congestion is the termination to be dreaded, which sometimes suffocates the patient on the fourth or fifth day, by filling up the air-cells with thickened blood. In the epidemic pneumonia, where a considerable degree of malignance is occasionally present, instead of blood, the air-cells often become choked with serum.

Gangrene is not a frequent termination of true pneumonia. The irritation or the congestion usually destroys the animal

before the tissues are completely broken up. Suppuration sometimes follows pneumonia, in which case there is a deceitful remission of the symptoms, but not so great as in hydrothorax. It is further marked by an irritating cough, a purulent discharge from the nose, with a hard, hurried, and an irregular pulse. In these cases a speedy termination follows by suffocation; or a more protracted one, in which the animal dies emaciated.

On the subject of symptoms, it remains to guard against mistaking pneumonia or inflammation of the lungs for such other affections as it may be confounded with—as with influenza, bronchitis, or other diseases of the mucous membranes.

The *Treatment* must be prompt. The old practice was to extract blood immediately upon entering the stable. The first blood-letting was to the amount of two gallons at least, the second of one gallon, and two, or even more, subsequent withdrawals of half or three-quarters of a gallon each; thus, at all events, four gallons of blood, or more, were taken away. A full-sized horse has but eight gallons of blood in his body, and one moderately fat has not that amount. Here, however, the veterinary surgeon withdraws half the blood from the poor horse's body, under the impression that the animal's disease announced it had too much of that fluid, to regulate the quantity of which is the care of the whole system. After this, he used to look upon the subsequent signs of excessive debility as natural results.

The antiquated notion about a horse having too much blood is now exploded; many excellent practitioners do not bleed at all; but if you resolve to take any, watch the animal; never mind the pulse at this time; and at the first sign of change, though it be ever so slight, pin up the vein, and on no account repeat the experiment.

Blaine's practice in pneumonia cannot, we think, be bettered; we therefore extract it in his own words: "The point to be considered is counter-irritation, and most practitioners blister both the sides largely, choosing for their agent cantharides, which is uncertain and slow in its action. One of the signs of improvement in inflammation of the lungs is the animal lying down, which, during health, it always does, upon its sides. The rendering of these parts sore seems to be opposing an obstacle to the animal resuming the recumbent attitude. The better plan would be to reject

cantharides, and spare the sides. A more active vesicatory, and a safer place for its action, can be found. We proceed to have the hair clipped from off the entire length of the back; then we take liquor ammonia, diluted with four times its amount of cold water, and with this we thoroughly saturate the place from which the hair has been cut. We next cover the part with cloths several times folded, to prevent the ammonia from evaporating. This needs to be watched, but will often raise a blister in ten minutes; whereas cantharides rarely has any effect before the next day. The ammonia is likewise more certain than the Spanish fly, and is altogether to be preferred, as in inflammation of the lungs in the horse there is no time to be lost before remedial measures are adopted. While this is doing, we procure four men, if possible, and place one at each leg, to rub the part with their hands as hard and as long as they can. Four thick woollen bandages are then produced, and one wound gently, not tightly, round each leg. A hood is then put upon the animal's head, but the whole of the body left uncovered.

The next thing is to procure a cool loose box—not a cold one, but a cool loose box—and to have the horse gently led into it, and then to look about and observe that no draughts blow directly upon his body. This being ascertained, provided the weather be favourable, the door and windows may be left open throughout the day.

All this accomplished, order the following drink to be prepared and administered:

Sulphuric ether	.	.	.	.	1 ounce.
Laudanum	.	.	.	.	1 ounce.
Extract of belladonna	.	.	.	.	1 drachm.
Tincture of aconite	.	.	.	.	2 drachms.
Cold water	.	.	.	.	1½ pint.

Rub down the belladonna in a little of the water; then mix with the other ingredients. The aconite (wolfsbane) should be of the strength of a drachm to an ounce. If stronger or weaker, make the due allowance, so as to have but the virtue of the fourth of a drachm in the drink.

Should the foregoing be rejected, either of the following may be employed:

Tartar emetic (in the form of the antimonial wine of the Dublin Pharmacopœia)		1 drachm.
Digitalis, made into a decoction		1 drachm.
Nitre		2 drachms.
Cream of tartar		3 drachms.

Mingle with a pint of warm water and give; or the annexed may be tried :

Powdered white hellebore	10 grains.
Powdered ipecacuanha	$\frac{1}{2}$ drachm.

Make the last prescription into a drink, with half a pint of thick gruel. Either of the above drinks is to be given four times daily at the commencement, and to be gradually lessened as the disease abates.

Great caution is required in giving a horse with inflammation of the lungs anything in the shape of a drink. Time and patience accomplish wonders. Lower the horse's head the moment it begins to cough. This last direction is most important, and should not be neglected, or the horse may fall dead from the fluid having fallen upon the lungs, which the examination after death is certain to disclose. The best plan is to proceed with firmness and yet gentleness, dividing the drink into four portions, if necessary, and allowing the animal to take its time over each.

All food should be removed. No trouble should be expressed because the horse does not eat. The animal with inflammation of the lungs generally has no disposition to feed; or if the inclination remain it should not be gratified. Starvation is one of the most active means of cure, and one of the surest agents in cutting short the complaint. The horse will lose more flesh in one day from the wasting effects of the disorder than he can in seven days from actual abstinence. Warm mash, not hot, however, may be placed in the manger; because in inflammation of the lungs it is dangerous to give any physic, lest the bowels sympathise, and the animal perish. Two ounces of Epsom salts may be dissolved in every pail of water, which should be repeatedly changed, and placed continually before the horse. Enemas of simple soap and water, in conjunction

with back-raking, may also be tried, in order to excite the bowels into action.

If debility should appear, tartar emetic should be withheld. If, in spite of this, the weakness increase, the horse may have linseed tea, made thick, placed before it, with two quarts of stout per day. The aconite, likewise, should be withdrawn, and attention paid to the legs, rubbing them whenever they are cold. In extreme cases brandy and ammonia are admissible.

When the disease abates, which it generally does in forty-eight hours, the care must not lessen; for the attack is likely to recur, or remain in a chronic stage as thick or broken wind, or even to degenerate into glanders. It is apt to involve other structures in its progress, as the pleura, when the symptoms will be somewhat confused, being between pleurisy and pneumonia. In such a case the terminations may be either those of inflammation of the lungs, or of the pleura.

It is a bad sign when the flanks heave, and the horse's head is put out of the window; and a much worse one when the head is withdrawn and the eye becomes amaurotic; when the animal keeps walking round and round his box, and breaking into partial sweats, sometimes raises his head and neighs, proving he is delirious, and in imagination answering the call of his species. In this last case be certain that death is not far off.

HYDROTHORAX (WATER IN THE CHEST).

This is a result of pleurisy, or pleuro-pneumonia, as the double disease of both pleura and lungs is called. It is generally fatal. The only chance is by the operation called "tapping," which is effected by introducing a trocar (a cutting instrument with a canula four inches in length, and a quarter of an inch in diameter), when the fluid contained in the cavity punctured escapes. Percivall recommends aloes, calomel, digitalis, and tartarised antimony to be persisted in, and *after* the tapping the following :

Blue vitriol	.	.	.	.	.	1 drachm.
Digitalis	.	.	.	.	.	$\frac{1}{2}$ drachm.
Tartarised antimony	.	.	.	.	.	2 drachms.
Turpentine	.	.	.	.	.	q. s. for a ball.

Mayhew, who gives drawings of the trocar and its stylet, with the operation of drawing off the fluid, advises, after the process, carefully boiled oats and beans, and the following night and morning:

Iodide of iron	. . . . .	1 drachm.
Strychnine	. . . . .	$\frac{1}{2}$ grain.
Sulphate of zinc	. . . . .	$\frac{1}{2}$ drachm.

Extract of gentian and quassia (powdered) sufficient to mix the ball.

CATARRH—COUGH—COMMON COLD—SORE THROAT.

Common cold is an inflammation of the mucous membrane lining the nostrils and throat. It may attack the neighbouring parts, or be confined to one only. It may be so slight as to ask no treatment, or become so severe as to threaten suffocation. We have already noticed influenza or catarrhal fever. In the simple attack on the Schneiderian membrane, which shows itself by a thin watery secretion from the nose, or perhaps the eyes, we have the first symptoms of common cold. In a few days the lymphatic glands become inflamed, swelled, and tender; symptomatic fever is present, and the tendency of mucous membrane to form pus without ulceration begins to show itself. Some cough is not unusually present. The discharge thickens, then ceases; and the horse is over the attack.

The *Treatment* is very simple. Extra clothing, etc., warmer dwelling, with a mild purgative ball, bran mashes with nitre (six drachms); a drink of linseed meal or tea, with an ounce of ipecacuanha wine mixed in should the cough be annoying, will suffice. If there be much fever (A) or (C) *Febrifuges* (see Horse Medicines). When the discharge is considerable, infuse bran or hay in boiling water, and steam the horse's nostrils with a suspended nosebag. Read's patent Vapour Inhaler is a most convenient and effective apparatus where available.

Professor Spooner recommends sulphate of iron, two drachms; ginger, one drachm; and gentian, two drachms; in treacle, as a tonic ball, once a day, when the discharge from the nose in catarrh seems obstinate.

In *Sore Throat*, where the region of the gullet and fauces is hot, and the salivary glands swollen and tender, a good

addition to the practice is a blister or mustard poultice to the throat, with a fever ball, containing half a drachm of tartar emetic and a drachm of nitre, night and morning. Purgatives to be omitted, the food scalded, and the water chilled.

CHRONIC DISEASES OF THE AIR-PASSAGES.

ROARING—CHRONIC COUGH—THICK WIND—BROKEN WIND—STRANGLES.

The artificial life of the domesticated horse occasions numerous diseases and changes of structure in his respiratory organs. Not only do the great lobes of the lungs suffer, but the passages to them are altered in dimension, and more or less obstructed, so that the sound produced by the passage of air is modulated, and "wheezing," "whistling," "roaring," etc., become familiar terms among horsemen. Thus, a horse "wheezes" when any obstruction exists in the nostrils; "whistles" when the obstruction is situated further back and near the opening to the larynx; and "roars" when the larynx is malformed, or the hindrance to the passage of air lies within the windpipe.

Roaring.—The causes of roaring are of two classes, acute and chronic. The acute are from obstructions accidentally formed, as cicatrices from wounds or injury, foreign substances lodged in the windpipe, extravasation of fluid or coagulable lymph, which, once organised, forms a permanent obstruction; when this extends up to the glottis it produces whistling. Whoever has handled the throats of many old horses must have observed a hardened state of the larynx, which almost resisted all attempts to what is termed "cough them." This ossification is not an uncommon cause; and a similar state in the cartilages of the trachea is productive of it also. A cause, also, of roaring is a band of lymph stretched across the tracheal tube; at others, an internal ring of the same matter simply diminishes its diameter. The obstruction is sometimes so considerable as to excite the sound upon the slightest exertion; in general cases, however, roaring is only exerted when forcible inspirations and expirations are made. Mechanical obstructions to free respiration may eventually be productive of roaring. The custom of tightly reining in our carriage-horses, especially such as run in pairs, or double harness,

there is reason to think, produces it; the practice of using tight throat lashes or neck straps may likewise induce it. In furtherance of which last opinion it may be recollected that horsemen have a very general supposition that crib-biting ends in roaring, in thick wind, or in broken wind. May not the tight collar, strapped around the throat, here tend to the former of these affections? The custom of "coughing" horses, and so frequently as it is practised in fairs, may be readily supposed as a cause. A horse passes from fair to fair, having his unfortunate throat brutally pinched thirty or forty times each day. Is it to be wondered at if inflammation takes place, and adhesive deposit follow?

Treatment.—This must be regulated by circumstances. When it is acute, and depends upon the diseased state of neighbouring parts, the inflammation of those parts must be relieved. When it can be discovered to be the consequence of recent inflammation of the laryngeal or tracheal cartilages, a physic ball may be given, and the seat of the disease blistered, while from day to day some sedative medicine is administered. In every case of roaring, however, excepting the acute, the cure depends quite as much upon chance as upon skill.

Chronic Cough.—Coughing is a spasmodic effort of the diaphragm, intercostal and abdominal muscles, producing a forcible expulsion of the air from the chest with such violence as is calculated to remove any extraneous body that may intercept the free passage of the air. Whenever it accompanies a general affection of the constitution, it is regarded as simply "symptomatic," and the original disease is attended to for its removal. Thus catarrh is accompanied by a cough, but we attend principally to the general affection as the best means of subduing it. A "chronic cough" is often symptomatic of some affection of the air-passages; it is also an attendant upon the state called broken wind. It likewise accompanies glanders; and appears when worms are in the stomach and bowels. But besides these cases, there exist at times, without any attendant difficulty of breathing (the horse at the same time eating well and thriving), a permanent cough, usually more considerable in the morning and evening, after meals, particularly after drinking, or on first going out to exercise; and it will remain in this state, without otherwise affecting the horse,

for years; sometimes it will even be continued with no obvious injury for his whole life.

The *Treatment* of "chronic cough" must depend on our view of its causes and consequences. When it appears to arise from a want of mucous secretion, give expectorants which excite such secretion (A) or (C) *Expectorants* (Horse Medicines). When a redundancy of the mucous secretion is apparent, tonics are required. (See *Tonics and Stimulants*.) When the secretion is acrid, try a *Demulcent*. The cough, which is the effect of an irritable state of the parts, is sometimes relieved by stimulating the throat externally, and by giving internally opium, with bitter tonics.

When worms in any large numbers are present in the stomach or intestines, a continued cough generally exists, with irregular appetite and unthrifty coat, stools fetid and slimy, at one time loose, and at another hard and dry; for which turn to the head under which those parasites are specially treated of. In all chronic coughs, the best effects sometimes follow from feeding with carrots. Turnips, parsnips, beet, and potatoes may be beneficially used where carrots cannot be got; and a mash with bran and linseed, or malt, may be occasionally given. Try the following every morning, made into a ball with honey:

Powdered ipecacuanha	.	.	.	$\frac{1}{2}$ drachm.
Camphor	.	.	.	2 drachms.
Extract of belladonna	.	.	.	1 scruple.

Thick Wind.—This is also a consequence of either acute or chronic pulmonary inflammation. In some instances it is the immediate consequence of violent or long-continued exercise, and particularly if the exercise be taken upon a distended stomach and bowels, or after full drinking; or it may be brought on by the application of cold. It is often connected with a plethoric state, and is therefore very common among pampered animals and gross feeders, and more particularly in low-bred and thick-set horses. The post-mortem examinations of such cases exhibit, in some instances, a slight hepatisation of lung, the consequence of repeated congestions; in others, the minute bronchial cells are filled with adhesive matter, or the general substance may be pervaded with minute granulations of a bluish colour.

The *Symptoms* of thick wind are sufficiently known to anyone at all conversant with horses. The capacity of the air-cells being diminished renders it necessary for the air to be more frequently taken in, because, being acted on by a less surface, the blood is not thoroughly oxygenated; and a sufficient number of air-cells not being expanded, the animal makes hasty inspirations to remedy the default. The force with which these are affected occasions the sound so well known as the distinguishing mark of thick wind. In this affection, the obstruction to both being equal, the inspirations and expirations are alike, which serves to distinguish it from broken wind. Thick is, however, very apt to degenerate into broken wind.

The *Treatment* of thick wind can seldom be more than palliative, for, once established, it remains permanent. The remedial means are more in the hands of the proprietor than of the surgeon. The food must be moderate in quantity, and of such a kind as will occupy the least possible space. No hay should be allowed, and as thick-winded horses are gross feeders, the muzzle ought to be put on as soon as the manger has been emptied.

Broken Wind.—This peculiar affection has long excited the attention of veterinarians. The older writers indulged in the most extravagant notions respecting it. On the Continent it has occupied, in later times, the research of many eminent veterinarians, but with little satisfactory issue. It has been attributed to external and internal causes, to a defect and to a superabundance of vital energy, to altered structure of the heart, of the lungs, of the diaphragm, the stomach, the liver, etc. It is injury with some, nervousness with others, and simple distention with a third. Among our own writers the discrepancy is equally great. Gibson attributed it to an enlargement of the pulmonary mass generally; Dr. Lower to a rupture of the phrenic nerve. But in later times it has been mostly attributed to structural change.

The cause of broken wind is hereditary or constitutional predisposition. A certain form of body is unquestionably favourable to its production, and it is from this circumstance that it proves hereditary. The narrow, confined chest, and the pendant belly which mark low-bred horses and gross feeders, predispose towards the affection. It may be the subjecting horses to a long-continued, unhealthy

course of feeding on dry food, as chaff, bran, barley-meal, etc., etc., that brings it on, as also working in mills, where much dust is necessarily inhaled. It is seldom the immediate consequence of pneumonia; but frequently it results from those states of disordered respiration which succeed to it, as thick wind, chronic cough, etc. We are much in the dark about its origin; we see that it gradually steals on a horse, occupying months, and even years, with a slight occasional cough, which, ripening into a state of impeded respiration, at last ends in broken wind. We see it also follow one hard gallop; and we may leave a horse well one day and find him broken-winded the next.

It is not by any means uncommon to meet with broken-winded horses whose lungs, after death, are neither emphysematous or otherwise structurally deranged; and which, with the exception of their lighter colour, and greater bulk than natural, cannot well be distinguished from the sound lung, although they crepitate or crackle when pressed by the hand. It appears likely that rupture of the air-cells is the cause of broken wind, because it is not always sudden, but gives some years of a warning cough, or of thick-winded wheeze.

There is another view of the cause of this disease, namely, that it depends upon derangement of the digestive canal; and if the irritability of the larynx favours the opinion advanced with respect to the lungs, the constant passing of wind supports the other conjecture. Horses with broken wind will eat almost anything, which, again, is opposed to the conclusion that the lungs are the sole seat of the disorder. The belly is enlarged, the stomach distended, and its coats much thinned, which last-named facts would seem to decide the question. But the truth is, broken wind appears to be a universal derangement, and it is not one structure that suffers, but the entire body undergoes more or less alteration.

Symptoms.—These are well marked; the cough and the manner of respiration may be considered as conclusive. The sound emitted by the cough is peculiar, and is often forced out with a kind of grunt, in a short but vibrating feeble tone compared with the usual cough of sound-winded horses. The respiration is conducted with a remarkable difference between the inspirations and expirations. Inspiration is effected quickly; and the lengthened, laborious

strain of expiration is performed by two distinct efforts, in one of which the usual muscles operate, in the other the abdominal muscles come into violent action to complete the expulsion ; after which the flanks fall with peculiar force, and the air is again inspired as by a spasm. An auxiliary symptom is the peculiar flatulence of every broken-winded horse ; this is strikingly characteristic of the disordered state of digestion common in these cases, and of the constant thirst which is invariably present.

The *Treatment* of broken wind can seldom be more than palliative. Whatever increases the distension of the stomach and bowels aggravates the complaint by increasing the difficulty of expanding the lungs. Therefore avoid stimulants, and promote regular evacuations ; abstain from over-distension of the lungs by too violent and too sudden exertions, particularly after eating. By carefully attending to these principal indications, a broken-winded horse may be rendered comfortable to himself and useful to his owner. The food should be regularly given, in moderate quantities only ; but most particularly it should be of such a nature as will contain much nutriment in a small space. Hence corn is more proper than hay, and, above all, a manger food, composed of one part bran, one part bruised beans, and two parts bruised oats, agrees particularly well, if given somewhat moistened. On a quantity of this food no horse will need hay. When they can be got, give also carrots, mangold wurzel, Swedish turnips, parsnips, or cooked potatoes, which feeding will be found to combine both medicine and nutriment, and render little water necessary. Turning out to grass commonly aggravates the symptoms of broken wind ; a neglect of moderate exercise also aggravates the complaint. Water should be sparingly given, particularly in the working hours ; at night a moderate quantity may be allowed, but on no account let the broken-winded horse drink his fill at a pond or trough. Medicinally, benefit has been received from daily small doses of foxglove ; under these circumstances it has been given to the amount of a scruple ; a piece of rock-salt placed in the manger has seemed to do some good.

Horse-copers have a mode of what they call "setting" broken wind. Fat, shot, opium—in short, any substance that will act as a sedative is used, often with a fatal effect on the animal. The test is to take the horse to a trough or

pond and let him swill at pleasure. The cough returns, the flanks heave, and broken wind reveals itself by all its ordinary symptoms.

BRONCHOCELE.

Bronchocele is an enlargement of the thyroid gland in the throat—in the human subject, goitre—and is a disorder of unknown origin. It is not very serious beyond mechanical inconvenience and unsightliness. The gland in its normal state is about half the size of a pigeon's egg; but sometimes, without showing active disease, as large as a hen's egg. It has, however, been known to grow so large as to press upon the larynx. It is a well-established observation that certain countries and localities are favourable to its production. In England, Derby and Nottingham shires have obtained this repute; on the Continent, Switzerland, the Tyrol, the valley of the Rhone, and others; and to an extent to lead us at once to the conclusion that influence of soil, or climate, or both, must have much to do with its production. Old medical writers ascribe its appearance in particular persons to that convenient *fons et origo*, "a scrofulous habit." Of late years the disease has been thought to be hereditary; and so strong has appeared the evidence of this in dogs, that Mr. Youatt's forcible expression on this point is: "I am quite assured that it is hereditary."

In horses we know nothing further about it than that a tumour, seldom of any great magnitude, makes its appearance in the throat, just below the part we grasp to excite coughing, either directly in front or inclining to one side, having a circular or an ovoid form, and feeling soft and puffy, and movable, without any flinching or sensibility being evinced by pressing or squeezing it, and without being the occasion of the slightest inconvenience or disparagement, save what may be considered to arise from its being regarded as an eyesore.

Treatment.—Should the tumour, on account of its volume, become the subject of medical treatment, iodine is our sheet-anchor. Supposing the case to be recent, it might, in the first instance, be advisable to give a brisk purge; after which, administer daily a ball composed of a drachm—which may be increased to two drachms—of iodide of

potassium and linseed meal, and, at the same time, rub into the swelling as much of the following ointment as is equal in bulk to a small walnut. Take of

Iodide of potass	.	.	.	.	1 drachm.
Simple cerate	.	.	.	.	1 ounce.

Or, if a drench is preferred :

Iodide of potass	.	.	.	.	$\frac{1}{2}$ drachm.
Liquor potassæ	.	.	.	.	1 drachm.
Distilled water	.	.	.	.	$\frac{1}{2}$ pint.

And after the drink rub in the ointment till no grease remains. Should the part become sore, you may pause in the rubbing-in treatment, as the disorder is not active, and the tumour is not morbidly sensible.

STRANGLES.

Strangles, a name given when there was little more known of this disease than its evident danger of *strangling* the patient, has come down to the present day. The disorder is peculiar to young horses between the second and fifth year. It is seldom met with in aged horses. It is evidently of febrile origin, yet its proximate causes are not known. It appears like smallpox or measles in the human subject; but it is not contagious. Sometimes it is so mild as to come and go without remedial measures, and the tumour has been absorbed naturally. Often when a young horse is looking sickly, delicate, or thriftless, farmers or breeders will say: "He is breeding the strangles," or that, "Strangles is hanging about him, and he will not get better until he gets over that complaint." The explanation of which appears to be that the animal is suffering more or less from "strangle fever"—a fever, the disposition and tendency of which is to produce local tumour and abscess, and most commonly in that situation—underneath the jaws—from which it has obtained the appellation of "strangles."

Symptoms.—High-fed colts are more liable to be seized with it at an early age than those which are kept upon a lower diet. The first symptom is cough, differing but little from that of a common cold, only that there is a more abundant

discharge from the nostrils, of a yellowish colour, and unaccompanied by disagreeable odour; it is also in most cases slightly purulent. There is, besides, a discharge of slimy, stringy fluid from the mouth. The membrane which lines the nose is red. It will be found that considerable swelling has taken place under the jaws, accompanied by fever, which is distinguished by want of appetite, a quick pulse, a hot mouth, and a general weakness of the whole frame, producing a dejected appearance. There is likewise a quick motion of the flanks, and coldness in the ears and limbs. The swelling is in the form of a tumour between the jaws, increasing with various degrees of rapidity, occupying nearly the entire space, and giving pain to the horse when eating; who also manifests a great disinclination to feed. This is accompanied by thirst; but the swelling prevents him from indulging in water, and, having swallowed a mouthful or two, he desists. After which, and even after eating, he is frequently seized with a spasmodic cough, with suffocating symptoms. The swelling is one uniform body, and, consequently, differs from the enlargement of the glands in catarrh and glanders.

Treatment.—As the visible complaint consists in the swelling between the jaws, the first thing to be attended to is to bring the tumour to suppuration. A sharp blister is the first thing to be applied. This, administered in time, will facilitate the discharge a week or two earlier than it would have taken place if allowed to come to a period naturally. It will also have a tendency to draw out the inflammation from the mucous membrane of the throat, and consequently ameliorate the cough. The following stimulating ointment may be applied with advantage after the removal of the blister:

Camphor.	.	.	.	.	.	1 drachm.
Hog's lard	.	.	.	.	.	1 ounce.
Oil of origanum	.	.	.	.	.	$\frac{1}{2}$ drachm.

Shortly after having been anointed with the above, a large hot poultice may be applied, and both repeated twice a day until the tumour is full of matter, and is quite soft. It frequently breaks of its own accord; but it is better that it should be laid open with a lancet, from the bottom upwards. The matter must be well squeezed out, and the lips of the

incision kept open with a piece of lint for several days, until the matter is completely discharged; otherwise, a second tumour may be formed, which frequently proves difficult of cure. After the matter is dislodged, a small quantity of Friar's balsam should be injected into the cavity of the tumour daily. It will be found that where tumours break spontaneously, the lips of the wound, from having uneven edges, will be more difficult to cure.

Should the neighbouring glands show signs of induration, rub them with an ointment of hydriodate of potass daily.

At this stage of the complaint, if there is no unusual degree of fever, a gentle laxative, and a tonic to follow, may be administered. Cooling medicines will be beneficial should there be fever. If there is no fever the animal will soon manifest a desire to eat. His food should principally be oatmeal gruel and bran mashes, with a supply of green meat, consisting of cut grass, or tares. Should these not keep the bowels sufficiently open—which is of great importance in diseases of this kind—then a laxative must be given. This will have the effect of preventing eruptions, which sometimes follow the strangles; and nothing more will be required, if it operates freely.

If, however, the complaint is followed by weakness, it will be necessary to have recourse to tonic medicine, which should be repeated daily until the horse recovers strength.

In bad cases of strangles the parotid gland will swell to a great size, and even become ulcerated; and in other instances an accumulation of fluid will take place, and burst into the cavity of the mouth, being discharged through the nostrils. The Eustachian tubes, too, have been found full of pus.

Strangles seems incidental to almost every horse; and as it is a complaint which is often of long continuance, foreign veterinary surgeons conceived the idea of inoculating to produce a milder degree of the disease. This they performed either with part of the discharge from the nostrils or with matter from the tumour. In many cases this has had a beneficial result, the disease being both shorter in its duration and milder in its effects.

DISEASES OF THE DIAPHRAGM.

The great muscle which divides the chest from the abdomen, or the organs of respiration and heart from those of digestion and secretion, is liable to two lesions, spasm and rupture.

Spasm of the Diaphragm is marked by a loud thumping noise, audible some yards from the sufferer. The pulse felt at the chest is feeble and rapid, and but scarcely perceivable at the jaws. The breathing is quick and laborious, and the animal shivers distressingly. Over-exertion on a full stomach is often the cause. Bleeding, aperient medicines, and then a sedative, are the active treatment called for.

Rupture of the Diaphragm, induced by the same causes as spasm, is, if extensive, fatal. If slightly ruptured, the horse has been known to live with symptoms of broken wind. Extra exertion will be at once fatal, as the viscera would come through the fissure and become strangulated. There is no treatment for ruptured diaphragm.

CHAPTER XX

THE HORSE IN SICKNESS AND DISEASE

DISEASES OF THE HEART, PERICARDIUM, AND BLOOD-VESSELS.

GENERAL OBSERVATIONS.

AIR, food, and exercise in good quality, and proper quantity, are the first requirements for good blood; with these, the production of the fluid which builds up every structure of the body—bone, sinew, and muscle—would remain in due proportion and quality, and disease (if nature did not scorn to be bound by our limited logic) would be unknown. The organic functions of the other viscera may be summed up in two words, *assimilation* and *secretion*. That of the blood, the product of assimilation, is to build up and renovate. Every part of the living animal is constantly running into decay from use, and requiring renovation—a process which begins with birth and ends with death. The

air and food, then, as we said in the first instance, form the blood, the residue of unassimilated matter being expelled as *fæces*. The blood thus supplied would soon over-nourish the system, and occasion what is called *plethora*; but this again has its escape in the *excretories* which throw off its useless or redundant portions.

The blood is the medium through which all this is accomplished; but we shall here merely look upon it in connection with the organs which mechanically distribute it, its vitiation embracing the whole range of diseases.

The diseases of the heart divide themselves into three classes: those affecting the substance of the heart; those of the surrounding membrane (pericardium); those of the lining membrane, and of the valves and coats of the great blood-vessels.

INFLAMMATION OF THE HEART.

The signs of heart-disease should be known, as the animal so afflicted is a very risky investment. "He may appear pleasing and even skittish," says Mayhew, "yet his existence shall at any moment be cut short." Auscultation is the surest means of detection. The visible signs, however, are sometimes sufficiently emphatic to admit of no doubt. The eye is expressive of anguish; the countenance is haggard; the pulse irregular; the throbs of the heart visible; and occasionally as visible on the right side as on the left. The carotid artery can be seen to pulsate in the neck. The regurgitation within the jugular vein is nearly always excessive—it often reaches almost to the jaw. It takes place by jerks, which ascend higher and higher, each becoming smaller and weaker as it mounts upward. The appetite is sometimes ravenous; but more often it is fastidious. The breathing is not accelerated in any marked degree, which distinguishes heart-disease from many other disorders. The animal suddenly stops, trembles, and appears about to fall, but often as suddenly recovers and proceeds upon the journey. Sometimes the horse will refuse to move, and is always very unwilling to turn in the stall. Occasionally he will open his mouth as if yawning, and then heave a long-drawn sigh. No peculiar symptom, however, can be specified as heralding the final attack. Death is always at hand, and

comes without any special warning. Worse than all, it is most imminent when the horse is going at speed.

INFLAMMATION OF THE PERICARDIUM.

This is the disorder usually known as inflammation of the heart. The membranous envelope of the heart is by no means infrequently the seat of inflammation. In opening horses that die of pleuritic disease, nothing is more common than to find effusions of lymph and water within the pericardiac cavity, as though the one membrane had morbidly sympathised with the other.

Pericarditis may assume either the acute or chronic type. It may exist as an idiopathic affection, but in most cases it will be found to be secondary—consecutive on inflammation of the pleura. That it may, at least in a chronic form, commence by itself and run its course alone, is in some measure proved by the cases of heart dropsy which every now and then present themselves unaccompanied by disease of other parts.

DROPSY OF THE HEART

is that stage of pericarditis where effusion has taken place, and the membranous sac is supposed to contain both lymph and water.

The symptoms of this affection, apart from pleurisy and pneumonia, are well marked. They are palpitation of the heart; the carotid arteries beat forcibly, and are readily recognised on applying the finger to their course in the neck. There is a good flow of blood through the jugulars, a copious return of blood through the neck; when the state of the pulse is considered, the surface of the body and extremities is warm; and these latter symptoms continue until within one or two hours of the horse's death. In addition to the above symptoms, there is such an expression of alarm and anxiety in the countenance of the animal as no other malady produces. The respiration is but little disturbed.

The fluid collected in most cases resembles the serum of the blood. Sometimes it is red, from being tinged with exuded blood; at others it is turbid from lymph floating in it; often it is sero-purulent in character, and looks like

so much whey. Now and then we find pus in flakes mingled with it. In quantity it varies considerably—from a pint to a gallon or more. The horse generally sinks from other disease, or from constitutional irritation, before the cavity is filled.

RUPTURE OF THE HEART.

This is more frequent than is supposed. Where it takes place, even from violent exertion, it is the result of previous enlargement, dilation, or aneurism of the aorta. Mr. Percivall says: "During one of the racing meetings that used to be held annually at Woolwich, one of the horses, who had vehemently contested, and lost only by half a neck, a heat, suddenly fell and died just after he had passed the winning-post. I afterwards examined the body, and therein found the heart burst: I think it was the right auricle that had given way—the animal had literally died of 'a broken heart.' In my regimental predecessor's time, one of the troop-horses, intended to mount king's guard, from the same cause, dropped down dead on the parade." As there is no *treatment* to be prescribed for such fatal lesions, we will not waste space upon them. Where disease of this important organ is suspected, attention to the general health, and regular, moderate, and slower work than the animal has been accustomed to may prolong life, and preserve the utility of the animal in a humbler capacity than the saddle, the fast trap, or the carriage.

ANEURISM OF THE AORTA.

The horse is by no means so subject to this fatal disorganisation as man. It is, however, met with generally as a consequence of ulceration. The horse with this "weak point" in his main blood-vessel (or in the iliac artery, which also occurs) is past all treatment, and may be looked on as "a dead 'un" for any serviceable purpose.

INFLAMED VEIN.

Inflammation of the vein is an affection now and then met with in practice, and ordinarily a discreditable result of careless or clumsy bleeding, and the effusion of blood in

the divided integuments and membranes. A dirty or rusty fleam has been known to produce it.

The *Symptoms* of the injury appear about the third or fourth day usually, when the lips of the cut begin to gape, and a little lymph is thrown out; the next day the edges are more cast back, as well as more red and expanded. A sanious discharge issues, or perhaps hæmorrhage occurs. The tumefied vein now feels corded, hot, and tender; and if the progress of the inflammation be not stopped, the tumefaction extends along the course of the vein. If in the jugular, it proceeds towards the head; and if it occur in any of the other veins of the body, as the saphena and plate vein, it extends towards the heart, hardening the vessel into a cord-like substance. This appears to be the consequence of the inflammatory action, by forming the contained blood of the venous trunk into a firm coagulum, and therefore all attempts to save it afterwards fail. Suppuration of the tumour now often appears, though sometimes the punctured part itself will present little more than a spongy mass, from which a grumous liquid distils, while abscesses form in various situations around the course of the vessel. As the morbid action extends upwards, it frequently involves the whole neck, and often affects the side of the head, from which results hindrance to motion; and often some difficulty is experienced in eating and drinking. There is commonly constitutional disturbance. In some cases the symptomatic fever runs very high. The pulse has been above ninety, and the excess of irritability brought on has destroyed life.

Treatment.—The course to be pursued will depend on the state of the disease. It is of importance to keep the horse as quiet as possible, and to restrain the neck from movement, which latter is best effected by tying up the head, and giving him gruel for food. It is also recommended to apply a mild blister in the course of the tumefied vein, which seems to assist by lessening the general inflammation; this, in fact, is an indication never to be lost sight of.

PLETHORA AND ANEMIA.

Plethora, or richness of blood, is a condition premonitory of disease; poverty of blood, also, may give rise to its

production. We are now about to learn that the system may become vitiated or corrupted, and disease in that manner be engendered in it. There are various ways in which noxious matters may obtain introduction into the system, some of which are palpable and open to demonstration; while others elude our observation so far as to become apparent only through their effects. The channels through which they gain admission are the alimentary canal, the air-passages, and the skin.

An animal may eat that which is unwholesome, mingled with his food, or he may drink water that is insalubrious; or he may, under some casual or incidental circumstance, lick in and swallow, mixed with his saliva, matter of a contaminating or morbid nature; in either of which ways he may lay the foundation of disease in his system.

Anæmia also may give rise to disease, either from the insufficiency of the quantity of the blood for the purposes of the animal economy, or from the thinness or poorness of its quality. It is too prevailing a practice in the regimen of the stable to keep horses "short of water," under the impression that much fluid is injurious—a notion that probably originated in the very proper custom of giving water very sparingly at the time the animal is required to exert himself. Hunters and racers are not allowed any, or but very little indeed, on the morning of the day they are to go to work. This, however, furnishes no good reason why the animal is to be debarred from quenching his thirst after his work is performed.

SANGUINEOUS AND SEROUS CONGESTION.

Sanguineous and serous congestion may exist in combination. When a horse's legs fill from standing in the stable (which they do from serous infiltration into the cells of the cellular membrane), the tumour is not the result of inflammation, but of sanguineous and serous congestion, in consequence of standing long without exercise. Blood accumulates in these parts remote from the heart. The seriferous vessels especially suffer from distension; and the easiest mode in which they can relieve themselves is to suffer the fluid to exude through their exhalant terminations. A similar disposition of parts may pervade the whole limb, as well as any cavity, organ, or part of the

body, and thus give rise to that condition which goes by the general name of dropsy.

Windgalls of all denominations may be regarded rather as the effect of congestion than of any inflammatory disorder. They form, generally speaking, without heat, and without causing lameness. They are, in fact, enlarged (hypertrophic) bursæ mucosæ, originating in congestion and augmented secretion, induced by the frequent or undue exertion of parts, and are simply indications of over-work.

CHAPTER XXI

THE HORSE IN SICKNESS AND DISEASE

DISEASES AND INJURIES OF THE GULLET, STOMACH, PERITONEUM, AND INTESTINES.

I.—Diseases and Injuries of the Gullet.

CHOKING.

THE gullet, or cesophagus, of the horse is a most delicate organ, yet barbarous violence is often practised on it by grooms, carters, and farriers. Its lining mucous membrane is thrown into small folds or wrinkles, marking the amount of distension intended by Nature. Its outside is enveloped by a large mass of cellular tissue to ensure its independence of motion, unembarrassed by the surrounding parts. Its channel is small, but large and strong enough for an animal which masticates a long time before it attempts to swallow, and to which nature has forbidden the power to vomit. Yet when some foreign substance, ignorantly or accidentally administered, becomes impacted in this delicately organised structure, the butt end of a carter's whip is employed to drive the obstructing substance onward. In the words of Mayhew: "Should the obstruction be situated low down the gullet, the whip handle is neither small enough nor pliable enough to reach the offending object. Should it be high up, the mass is thrust partially onward, beyond reach of the human hand, and ultimate relief

rendered difficult indeed. As the passage grows narrower, greater violence is resorted to, and the thrust is persevered in till the whip moves onward, and the stablemen congratulate each other that all is right at last."

"When the whip seemed to yield," continues Mr. Mayhew, "something more than the obstruction gave way; the membranous wall of the tube was ruptured; and an almost inevitable death awaits the unfortunate animal. He makes every effort in his power to complete his imperfect swallow, and gulp down the cause of his distress. Should he not succeed, his throat and neck become, through his ineffectual exertions, spasmodically drawn up; and probably he gives every now and then a loud shriek expressive of anguish. Should he attempt to swallow water, the fluid, together with the saliva abounding in his mouth, returns through his nostrils. The refusal of food, with symptoms of apparent sore throat, connected with circumstances of a suspicious nature, should induce us to examine the pharynx and œsophagus well with our fingers to detect any prominence; also, to give the animal water, with a view of ascertaining whether there be obstruction of any sort or not. If the fluid is ejected through the nose, we should be warranted in introducing a probang, than which, in case the obstructing body lie below the neck, we possess no other means so sure of discovering its seat, or so readily removing it. A probang, however, is an instrument in the possession of professional persons only, and one which often happens to be at home when they want it abroad, and therefore they are frequently forced to seek a substitute. A stout cane might answer the purpose. In all cases no time is to be lost. Water—often a great assistant—and the probang are to be immediately had recourse to."

A word about the probang for the horse. It should be like that used for the human subject, consisting of a slip of fine whalebone, having a sponge at one end. When required, saturate the sponge with water or sweet oil, and sponge it dry before driving it down the œsophagus. The material will adapt itself to the diameter of the gullet without injury, and will not be difficult to draw back, even should it enter the cardiac orifice.

The following case shows a successful removal of a soft obstruction without resorting to œsophagotomy.

Mr. King was summoned to a horse that had had a ball administered to him by the groom, wrapped up in writing-paper; since which he had ejected everything he had eaten or drunk. A prominence appeared in the neck, a little above its middle; but all means to force the obstructing body onwards were without avail. At length he determined on cutting down upon the œsophagus; having done which—without opening the tube—he found the obstruction arose from the lodgment of the ball the groom had given. Feeling the tumour soft and compressible, he squeezed and kneaded it with his fingers and thumb for some time—after which he left it *in statu quo*. Shortly afterwards the ball was by natural efforts carried down into the stomach; and liquids were taken and easily passed. It was not for some time, however, that the animal became enabled to take solids into his stomach. They were rejected through the mouth and nose the moment they had descended as low as the place where the ball had stopped. Mr. King thought that this must have been owing to the presence of a stricture—an opinion he conceived warrantable from the circumstances of the ball being in itself but a small one, and of soft composition, yet incapable of being stirred by the probang.

CUTTING INTO THE THROAT.

When the means detailed under the head of *choking* prove ineffectual for the removal of the foreign body obstructing the canal of the œsophagus, the operation of cutting into the tube, “œsophagotomy,” is our resource, unless it happen that the obstruction is below the neck, when no knife can reach it. The same operation may likewise be practised with a view of overcoming stricture, or for the purpose of injecting medicinal or alimentary matters into the stomach, when there is no possibility of introducing them through the mouth. In the hands of a competent veterinary surgeon there is nothing to dread in the performance of œsophagotomy; although, from the œsophagus lying behind the windpipe, and much deeper, and there being the jugular veins and carotid arteries, the par vagum, and sympathetic and recurrent nerves by the sides of the trachea, the scalpel requires to be handled with caution as well as skill.

Recollecting that the œsophagus, after proceeding down one-third of the neck, inclines to the left of the trachea, and before it reaches the chest gets quite round to the left of that tube, we should select the left side of the neck, and below the upper third of it, for the operation. Supposing we take the middle of the neck, our first incision should be three inches in length, and directed along the inferior border of the jugular vein; which vessel had better be kept distended the while by pressure from the hand of an assistant. The lips of the wound being kept apart by the assistant, the operator carefully prosecutes his dissection through the cellular tissue with which this hollow abounds, keeping his knife from wounding the jugular on his right, and guarding against the carotid artery and nerves which lie enveloped in the cellular substance contiguous to the windpipe, whose situation he will best ascertain by feeling for the pulsations of the artery. His object now is to get behind the carotid, and there feel for the windpipe; and this being found, will guide him to a firm, cordiform, shining red substance, in close apposition with it; this is the œsophagus. In case any injection into it be required, the œsophagus must be drawn forward with a blunt hook, and opened by a longitudinal incision, and an appropriate tube introduced.

But where the extraction of a foreign body is our object—a circumstance that will render the operation much more facile, the tumour being our guide for incision—nothing remains to be done after this but to liberate the enclosed substance, and close the wound in the œsophagus with a common suture of silk thread, and unite the lips of the external wound with pins and tow twisted round them, in the same manner as the wound after bleeding is closed. Lastly, a compress upon the wound, confined by a roller around the neck, will give support, and perhaps be found serviceable. During the healing of the wound the animal's diet must be liquid, or nearly so: gruel, thick and nutritive, and boiled roots, and mashies of semi-fluid consistence. Chopped green meat of any soft and succulent kind, and short-cut grass, are also admissible.

II.—Diseases and Injuries of the Stomach.

STOMACH STAGGERS — INFLAMMATION OF THE STOMACH —
 INDIGESTION — DIARRHŒA — COSTIVENESS — SPASMODIC
 COLIC — TYMPANY, OR WINDY COLIC — SWELLED BELLY
 (DROPSY) — WORMS — BOTS — CRIB-BITING AND WIND-
 SUCKING.

Stomach Stagers.—The disorder known by this name may be referred to *phrenitis* or *mad staggers*, of which it is the first or premonitory stage. In this case, however, the mischief, if observed in time, must be relieved by the unbinding of the stomach, whose oppression has involved the brain by recurrent sympathy. Medicine is often powerless from the gorged state of the intestines, and bleeding is accelerating death, although the books recommend it. The first thing is to back-rake, administer a clyster of salt and water, and drench him with warm water, in which a couple of teaspoonfuls of the compound spirit of ammonia is mixed with double that quantity of carbonate of soda, to soften the contents of the stomach. If bleeding is ventured on, it should be in the sleepy stage, taken from the jugular veins. The drenching and clystering must be assiduously followed up till their good effect is visible. Some ease will be given to the animal in the sleepy stage by giving him a cask with a straw pad on it to rest his heavy head upon. If a purgative is advisable after the above-mentioned treatment, give the following drench:

Barbadoes aloes	1 ounce.
Calomel	1 drachm.
Oil of peppermint	20 drops.
Warm water	1 pint.
Tincture of caraways	1 ounce.

Instead of the common drenching horn, the fluids may be injected into the stomach with Read's syringe. White recommends croton oil, 20 to 40 drops, instead of the aloes, on account of its smaller bulk and more rapid action.

INFLAMMATION OF THE STOMACH.

Inflammation of the Stomach is unknown in the horse, except as the result of poisons, acrid substances, or some

powerful stimulant introduced into the stomach. However, it is sufficiently common from the above causes, and every case is attended with great danger, though unmarked by any characteristic symptom. It cannot be easily distinguished in its severe stage from twist of the intestines, stone in the bowels, etc.

The mode of treating it has already been detailed under *Stomach Staggers*. The symptoms from poison are extreme distress and restlessness, a loathing of food ; for if anything be given by the mouth it creates increased pain a long time afterwards. The animal breaks out into cold sweats ; lies down and quickly rises again, as in inflammation of the bowels ; becomes early and greatly prostrated in strength ; and has a pulse usually quick and much oppressed. There may be purging, and generally is, though the opposite state may also exist. The signs are also materially shaped by the nature of the substance swallowed. The following is advised where the symptoms are doubtful, and what has been done to the animal cannot be ascertained :

Sulphuric ether	3 ounces.
Tincture of opium	3 ounces.
Carbonate of soda or magnesia	4 ounces.
Carbonate of ammonia	1 drachm.
Cold gruel	1 quart.

CHRONIC INFLAMMATION OF THE STOMACH.

This affection is, in our opinion, more common than is suspected. It is set down as merely "indigestion," and a consequence of a dyspeptic state of the gastric juice. This is plausible, but not all the truth. The disorder is said to be produced by rearing the animal on soft or sown land. *Inflammation of the Stomach*, in its chronic form, is frequently first displayed at the period when the services of the animal are esteemed most valuable, or between the fifth and sixth years, long after the mode of rearing has ceased to operate. The symptoms are various, and hardly ever alike. The stomach may affect the nervous system ; then its complications become difficult to disentangle. The affection is mostly declared by an irregularity of bowels and a capriciousness of appetite. The animal starts off violently

purging. The looseness stops as suddenly as it commenced. Obstinate costiveness then sets in, and each state can be traced to no obvious reason. The straw or litter may be eaten ravenously, but all wholesome provender obstinately refused. The dung shows the condition of the appropriating functions; it crumbles upon the slightest force being imposed; it appears to consist of fibres not agglutinated together. Sometimes it is coated with mucus; and always smells abhorrently. A dry cough may be present; the visible membranes are pallid; the mouth feels cool; the breath is tainted; the eyes are sunken; the respiration is catching; the belly is pendulous; the anus is lax and prominent; the coat dry and ragged; while the body quickly becomes emaciated.

The slightest exertion produces a thick and copious sweat. The symptom, however, which is most remarkable, when the cleanly habits natural to the animal are considered, is the peculiarity of the appetite. The rack and manger are generally neglected; but every unnatural or offensive substance within reach of the extended jaws is devoured with avidity. Woodwork has largely disappeared. Soil and stones have been removed from the stomachs of creatures destroyed for incurable disease. Either of the substances last named, however, are usually spared so long as a morsel of plaster, a portion of mortar or of brick is within reach. Animals, when in the field, will leave the grass and enter any ditch to gnaw at bricks and mortar. When confined, they will, under the morbid influence of this affection, employ themselves for hours searching for a morsel of either amongst the straw.

The old custom of purging and bleeding for a case of this kind is positively injurious. It is better to administer bitters, alkalies, and sedatives: the first, to amend the appetite; the second, to correct the acidity of the morbid secretion; the third, to destroy the uneasy sensation which provokes too many of the symptoms.

Strychnia	$\frac{1}{2}$ grain.
Bicarbonate of ammonia	1 drachm.
Extract of belladonna	$\frac{1}{2}$ drachm.
Sulphate of zinc	$\frac{1}{2}$ drachm.

Extract of gentian and powdered quassia, of each a sufficiency.

Or,

Powdered nux vomica	.	.	.	1 scruple.
Carbonate of potash	.	.	.	1 drachm.
Extract of belladonna	.	.	.	$\frac{1}{2}$ drachm.

Extract of gentian and powdered quassia, of each a sufficiency. Give morning and night.

One of the above balls may be given daily. When their benefits seem exhausted, give, instead of a ball, half an ounce each of liquor arsenicalis, the same of tincture of ipecacuanha, with one ounce of muriated tincture of iron and of laudanum, in a pint of water. Also damp the food and sprinkle magnesia freely upon it. Then, as the strength improves, introduce sulphuric ether, one ounce ; water, one pint, daily ; and ultimately change this last for a quart of good ale or stout.

INDIGESTION.

Indigestion, in a medical sense, is a phrase of much comprehensiveness. In man, whose digestive organs are in some respects differently constructed from those of horses, there is much reason for regarding the stomach as the grand agent of digestion ; but in the horse, who is a graminivorous animal, one that is almost always feeding, and whose food is for the most part of a nature that occupies a large volume, notwithstanding his stomach is in itself but small, that organ appears to do less towards the completion of the process, leaving much to be done after the alimentary matters have passed into the intestines. To say, therefore, that indigestion is owing to some fault in the stomach alone is taking too confined a view. Equally in error should we stand were we to hold the stomach altogether without fault.

The comparatively short time the aliment continues within the stomach, and what remains to be performed to complete its digestion in the intestines, accounts for the latter being oftener the seat of indigestion than the former ; though the stomach, as we have already seen, may, by being over-crammed with food, or over-distended with air, become the seat of what may be regarded as the most dangerous kind of indigestion.

The *Symptoms* of indigestion are: The horse does not thrive as other horses in the same stable, nor is he capable of the same work; though his appetite, so far from being impaired, may be even voracious. Often it is fastidious—good at one time, indifferent at another. Sometimes it is depraved. He will gnaw and even eat almost anything within his reach—dirt or stones, a brick wall, and particularly the plaster or mortar from it, his crib or rack, etc. His coat has an unhealthy aspect; it is what is called “pen-feathered” and arid, and perhaps scurfy; nor is it shed at the usual season. He is hide-bound. His dung has not the appearance it ought to have; it is either darker or lighter than is natural, has an offensive odour, and when broken crumbles to pieces, and appears to consist of lumps of loosely-compacted chopped hay, mingled with many entire or imperfectly changed oats. In the stable the horse is mostly inclined to be costive, but when taken to exercise is soon excited to purge.

The Ordinary Seat of Indigestion would appear to be within the villous membrane of the stomach, or else that which lines the intestinal canal; both these membranes furnishing secretions indispensably necessary for the due conversion of the food into alimentary and fæculent matters. Independently, however, of any derangement in these membranes, various other causes might be mentioned, sufficient of themselves to account for the incomplete performance of the digestive process. Mastication may not have been duly performed; the salivary secretion may be bad or defective; the liver may not have done its duty; the bile may be faulty in quality or quantity, or the pancreatic juice; or there may exist some derangement in the peristaltic action, and consequent irregularity in the progress of the alimentary matters. Other causes may exist, although irritation, or inflammation, or disorder in some form or other of the membranous lining of the stomach and bowels appears to be the ordinary one, and that to which our observations in this place are confined.

Treatment.—The ordinary mode of dealing with these cases is to administer two or three doses of physic, at intervals of a week or so. A preferable procedure to this is the old one of dividing the ball into two doses, and giving them at intervals of three or four days; the bowels being, in many of these cases, in such a state of

morbid susceptibility that a full dose of purging mass is very apt to bring on diarrhœa. Besides, keeping up a very moderate discharge from the bowels is, in the end, productive of more benefit than giving full doses of physic. When scouring is actually present, without any medicine having been given, or in a case where ever so little aloes induces it, much good may be effected by administering *hydrarg. cum creta* in doses of a quarter ounce once or twice a day, made into a ball with common treacle. Cases in which, on the contrary, costiveness is a prominent symptom—there appearing to be a deficiency of bile—are benefited by the exhibition of a scruple of calomel once a day, either in combination with a drachm or a drachm and a half of purging mass, or else followed up by a dose of physic.

Change of diet will often much assist in the restoration of healthy digestive functions. When green meat can be procured, soiling in the stable will be advisable; though in mild weather, and when flies are not troublesome, a run at grass is to be preferred. Breathing the open air all day long, with the moderate exercise the animal takes of his own accord, being both very conducive to his health. In the winter season, carrots are given with advantage. Swedish turnips are also commendable; and bruised or scalded oats may be tried. When simply the mastication is found faulty, mingling the oats with chaff often proves a preventive. Linseed and malt may be given in mashes, or the latter may be made into tea; or hay-tea may be offered; though the horse is not likely to drink either of them voluntarily, unless he has been kept short of water. Drink should be given *ad libitum*, the pail being so placed that he can help himself.

DIARRHŒA.

The leading symptom of diarrhœa is the voiding of the fæces in a liquid state. In other words, an increased peristaltic action with a greater secretion of watery fluid in the intestines, or a deficiency of the absorbent power as regards the fluid contents; or lastly, an irritability or slight inflammation of the mucous lining of the stomach.

It is distinguished from dysentery by the purging being incomplete from the very first; by its being less copious,

having all the fæces in solution without any glairy mucous matter; and also by being seldom accompanied with fever, or any great affection of the general health. Some horses are very liable to purging on exertion, and such are termed by grooms "washy"; having usually narrow chests and lank bellies, in which the intestines have not sufficient room for their natural processes, but are pressed on, and thus forced to a hasty expulsion of the unassimilated contents.

Causes.—Diarrhœa may arise from mechanical pressure resulting from the last cause; thus, a light belly is often found with occasional diarrhœa, or it may arise from a debility in the intestines themselves. A weakened state of the bowels, inclining to this affection, is often brought on by drastic purges. It may likewise spring from the intestines containing some offensive matter which nature is striving to cast out, little dung being emitted at a time.

It may also be occasioned by the sudden application of cold, whereby the exhalant vessels of the skin becoming checked, more fluid is necessarily thrown on the intestines, which operates not only by increasing their quantity, but likewise by the addition of something foreign, hence irritating to them. In those cases which are marked with thirst and increased pulse, the restoration of the healthy action of the skin is necessary to a cure; diaphoretics, as antimony, warm clothing, etc., are advisable, and the use of outward astringents.

The Treatment.—In general cases, when the motion is copious, little need be done. Nature is then relieving herself, and requires little more than warmth and a change of diet. If constitutional, we must palliate by a mild but constant check on the existing causes. A light-bellied horse should not be worked severely several days together; avoid too much water, or too early labour directly after meals. Let the fæces be examined: if the food passes away undigested, the stomach requires tonics; but if it be a recent attack, examine well for the probable cause. Has it followed any undue exposure, any violent exertion, any change of food, any great difference in the warmth of the stable? Is the water good in quality? Are the oats, or is the hay, new? If none of these causes operate, we must first make ourselves aware that it is the fæcal discharge which passes, for such appearances have concealed an obstinate constipation.

Being convinced of the diarrhoea, commence the cure by mild astringents.

In general cases of diarrhoea, give the following drink once or twice a day, according to the violence of the complaint :

Prepared opium	. . . . .	$\frac{1}{2}$ ounce.
Powdered catechu	. . . . .	1 drachm.
Prepared chalk	. . . . .	1 ounce.
Sulphate of iron (green vitriol)	. . . . .	$\frac{1}{2}$ drachm.
Mix in thickish gruel.		

Should the horse be weak, boiled starch, or arrowroot, or boiled bean-meal, may be passed down the throat frequently. Give no cold water to drink, but instead, give thin gruel or rice-water, tepid. Clothe warmly, encourage a high temperature also, and carefully avoid exposure to sudden currents of cold air. The subject will again occur under *Dysentery*.

COSTIVENESS.

Some horses are habitually costive, which arises either from a defective secretion of the fluid of the bowels, or that the absorbents act too strongly, and take up too much of the liquid contents, by which the faecal mass becomes dry, hard, and difficult to pass; or it arises from a defect in the formation of the bile, either as to quantity or quality. This we know from what occurs in jaundice, in which, from a loss of the bile by extravasation, there is always present a strong disposition to a costive habit. Some food is prone to occasion constipation, as whatever is stimulating or heating. Corn of all kinds, therefore, has this tendency, but beans more than all. Habitual costiveness should not be counteracted by purgatives, as they generally increase the evil; but attention should be paid to the habit itself, and the peculiar tendencies of that should be counteracted. Dry food should be remedied by occasional bran mash. Green meat is particularly useful in these cases in summer, and carrots in winter. A costive state of bowels may sometimes be remedied by placing a lump of rock salt within the manger. When costiveness arises from defective bile, treat as directed under jaundice.

Occasional or accidental costiveness must be treated differently. First back-rake, next throw up a large laxative clyster, and then proceed to give a mild purgative by the mouth.

SPASMODIC COLIC.

Colic, "the Fret," "Stomach Cramp," or "Gripes" of farriers, is divided by medical authorities into several varieties, of which only two seem worth notice in a general compendium of horse diseases—these are spasmodic and flatulent or windy colic. We have preferred treating of it here, though the section on the *Intestines*, or *Bowels*, has fully as much claim to it.

The pain of spasmodic colic is due (unlike enteritis, or inflammation of the bowels) to a contraction of some portion or portions of the intestinal tube. The tube, by virtue of its muscular coat, possesses a power of contracting its canal, which contractile property it is that enables it to press the alimentary matters onward from the stomach, until they arrive at their ultimate outlet. This muscular tunic, in common with other muscles, is liable to be affected with spasm or cramp; when this takes place, the intestinal canal is locally contracted to that degree that the aliment is arrested in its course, and the pain, while the cramp or gripe continues, becomes poignant in the extreme.

The symptoms of colic are the same as, with two or three notable exceptions, denote painful bowel-affections in general. The attack is sudden. The horse appears to be all in a moment seized with acute pain in his belly. He commences violently pawing and stamping, and striking his belly with his feet. After a few times bending his knees and crouching his body, and advancing his hind feet under him in attempts to lie down, he at last drops rather than lies down, issuing a sort of grunt from the fall, and immediately commences rolling upon his back, endeavouring every time he turns to balance himself in the supine position; though often he is unable to accomplish this until his legs, in rolling, happen to come against the side of the stall or box. When once he has got upon his back, he will, with his feet drawn downward upon his belly, and his head and neck, perhaps, curved to one side, remain quiet

for a minute or two together, this posture appearing to afford him temporary relief.

On other occasions, after several ineffectual endeavours to roll upon his back, he will suddenly rise again, and having given himself a shake, as it were to get rid of the straws or dust about him, stand so quiet for a time that he appears by his rolling and struggling to have got rid of his pain. Soon again, however, he averts his head and regards his flank, with his ears down and an expression in his eye as much as to say, "There lies my pain, and now I feel it coming on again." Each successive fit or paroxysm turns out commonly to be longer and more violent than the one preceding. Early in the disorder, the remissions from pain, or intervals of ease, are evident enough; but as the case proceeds, the paroxysms growing longer, the remissions become shorter, and after a time altogether unobservable. He heaves at the flanks, and breaks out into profuse perspiration: drops of sweat stand upon his brows and eyelashes, and every hair in his coat becomes wet through.

The next change, should his torture continue unmitigated, is one bordering on delirium. He grows heedless of all around him; his eyes turn wild and frantic; his violent motions render all approach to him perilous; cold sweats bedew his body; tremors succeed; he falls down maddened and exhausted with pain, and in convulsions expires. The pulse at the onset of the disease, and during the remissions from pain, is but little altered; but while the paroxysm endures it grows frequent, and becomes contracted to a thread, and indeed at times is so indistinct as hardly to be felt at all. Under the extremity of suffering, its quickness, and with that its strength and perceptibility, become augmented. The belly is tense, sometimes perceptibly swollen, and commonly very tender to pressure. The bowels are constipated, though oftentimes dung will be passed on the eve of the attack; and in the height of his pain the animal will void his urine.

The cause of colic, ordinarily, is a draught of cold water, especially while the horse's body is heated. Water from certain mineral springs has been—apparently from its impregnations—notorious for having this effect. Sudden chill of the skin is said to have produced gripes. A common dose of physic will now and then occasion it. Violent

spasms have been produced from linseed or castor oil. Vetches and other green meats will at times gripe; so will new straw, and particularly that of wheat, and likewise peas; in fact, any irritating or acidulous matters in the bowels may have this effect. Now and then spasm is brought on by costiveness, and by hardened dung or stony concretions.

Unless some decided check, if not a satisfactory stop, be put to the progress of the disorder within the first half-a-dozen hours, we may begin to harbour apprehensions. Ordinary cases are relieved by a single dose of medicine; many without any medicine at all. Cases that run on unrelieved to death seldom exceed twenty-four hours in duration.

Treatment.—Every farrier and groom, horse-dealer and horse-keeper, fancies himself quite as competent to treat colic as the most skilful veterinarian; and, in point of fact, providing the complaint be purely spasmodic, his remedy is likely to prove in the first instance quite as effectual; it being notorious that almost every sort of spirits and aromatics possess antispasmodic properties. The groom, being well convinced of their efficacy from experience upon his own person, as naturally runs for gin and pepper, or peppermint water, for his horse when “griped” as he does for some agreeable spirituous compound for himself. Given at the instant, it seldom does fail; for it imports less what we give than when the remedy is administered. That which is given at the outset appearing to have a decided advantage over anything exhibited later in the attack.

Opium holds the first place among antispasmodics. A very effectual antispasmodic ball, combining the three properties, narcotic, stimulant, and terebinthinate, is composed of one drachm of opium, of two drachms of Cayenne pepper, or half an ounce of ginger, and of a sufficiency of Venice turpentine and meal to make a moderate-sized ball. Combine with the antispasmodic a full dose of purgative medicine. Mr. Percivall advises, in a pressing case, to give without loss of time the following drench:

Decoction of aloes	12 oz.
Tincture of opium	2 oz.
Spirits of nitric ether	2 oz.
Water, boiling	$\frac{1}{2}$ pint.
Mix.	

Should the decoction of aloes—that admirable formula—not be at hand, we must content ourselves with a simple solution of aloes in hot water, bearing in mind that the dose is meant to be either ten drachms of Barbadoes aloes or twelve of Cape.

Spirits of turpentine, in four-ounce doses, was Professor Coleman's remedy, and is still in favour at the Veterinary College. It is dangerous without olive or linseed oil, as producing sore throat. Hartshorn, with tincture of myrrh, is open to the same objection. Mr. White's formula is unobjectionable:

Turkey opium	1 oz.
Cloves, bruised	2 oz.
Ginger, ditto	3 oz.
Brandy, rum, or gin	1 quart.

Exercise is often productive of a great deal of benefit after the antispasmodic remedy; it increases the peristaltic motion, causes often the expulsion of air and dung; and should he sweat, it tends rather to relieve than to augment the spasm. However, he must go willingly, and not be urged.

A clyster, composed of two ounces of Cape aloes dissolved in six quarts of soap-water or gruel, may be administered with a view of emptying the rectum; or one in which a pint of oil of turpentine is substituted for the aloes may be given with a view of relieving the spasm. But what, in a case of any danger, is better than either is the clyster of tobacco-smoke; and the best apparatus for conducting this operation is Read's enema syringe, furnished with a metallic box for containing the tobacco, with a pierced plate across the inside for transmitting the fumes.

A warm bath would certainly prove a most desirable situation for our patient, could one be procured. A sackful of hay, dipped in water nearly boiling, and bound upon the belly, may likewise relieve him.

FLATULENT COLIC.

Tympany, or windy colic, is produced by the distension of the intestines by gas. It is most frequent in summer, when horses are fed with green meat, but may be produced

by the digestion of any description of horse fodder. A draught of cold hard water, having sulphate of lime in suspension, will often cause flatulent colic. It somewhat resembles in symptoms the inflated paunch of ruminating animals called "hove," "hoven," or "blown," which is induced by overloading the stomach with succulent herbage, especially clover, by the fermentation of which gas is generated in such volumes as to distend the animal almost to bursting. The horse, however, unlike the cow, has no paunch, and cannot be, strictly speaking, "hoven"; though it is by no means infrequent for him to be affected by tympany, or windy colic. Windy colic is frequently an affection of the aged horse. It is not the entrance of atmospheric air (which does not pass down the œsophagus in any case, though a small quantity of air is found in the intestines), but the generation of carbonic acid gas, or sulphuretted hydrogen gas, the products of decomposition. Either of these gases will destroy life by asphyxia if drawn into the lungs.

Symptoms.—The horse which is oppressed by flatulent colic exhibits uneasiness after feeding; it hangs the head, breathes laboriously, fidgets, rocks the body, and rests first on one leg, then on the other. These symptoms are exhibited before any enlargement of the abdomen is to be detected. With the swelling of the belly pawing commences; that action is, however, far too leisurely displayed to be for an instant confounded with the same energetic movement which characterises spasmodic colic.

The horse will stand in one spot throughout the day; even the movement of the foot, before noticed, appears to be an exertion. The eye is sleepy, the pulse heavy, wind frequently passes from the body; and in such a condition the animal remains, slowly becoming worse. Almost in the same place the horse may stand three or four days; then the abdomen is much increased in size; the animal is restless; the pulse is extremely feeble; the breathing is very fast; the pupil of the eye is dilated, and the sight is lost. A walk, as in a mill, is commenced; obstacles are run into or upset; delirium begins; weak neighs are uttered in reply to visionary challenges; the coat is ragged; copious and partial perspirations break forth; the beat of the artery is lost at the jaw; an intermittent flutter is distinctly felt at the heart. At last the limbs fail; the body

falls; and a death-struggle ensues, the creature dying in consequence of the distended abdomen compressing the lungs and preventing the breath being inhaled.

SWELLED BELLY—DROPSY.

The symptoms of a general attack of dropsy are swelling of the belly, the sheath, the loose skin in the space between the arms, the breast, the sides of the face and nostrils, the arms, thighs and legs. These are the ordinary situations for dropsical swellings, though it does not always happen that all these parts are affected. In general the legs are only secondarily affected, the tumour in the first instance appearing in the body and arms and thighs, and from them gravitating into the legs. At times the tumefaction is, when once it has commenced, very rapid in its progress, and spreads to such an extent in the course of a few hours after its first appearance as to render the animal almost incapable of locomotion.

Causes.—Horses that are turned out to the strawyard in the winter season are the frequent subjects of dropsy. They leave a warm atmosphere for a cold and humid one, a generous diet for one that comparatively starves them, and they drink *ad libitum* of water, which may be, but most probably is not, of the most wholesome description. The skin will certainly receive a check in regard to its perspiratory functions; the air-passages, also, will feel the effects of cold and moisture; while the digestive organs will experience more or less alteration in their economy in consequence of the change of aliment.

The *Treatment* promises little, because it is rather a symptom of visceral disorganisation than of simple irritation. We are warranted, however, in attempting the removal of the fluid by exciting the absorbents, and by strengthening the system generally by tonics. We must, however, use no depletion. It may also be observed that purgatives are not admissible here; on the contrary, they may be expected to occasion much constitutional disturbance. Mild blisters, etc., external friction, frequent and long-continued, are best, with gentle, repeated exercise, aided by warm clothing.

Mr. Mayhew sensibly recommends that the food should

be small in bulk, but nutritious in quality ; no work should be imposed. He prescribes :

- Strychnia . . . A quarter of a grain, worked gradually up to one grain.
 Iodide of iron . . . Half a drachm, worked gradually up to one drachm and a half.
 Extract of belladonna One scruple.
 Extract of gentian . A sufficiency.
 Powdered quassia . A sufficiency.
 Make into a ball ; give one at night and at morning.

Should the fluctuation and tumidity not yield, we must proceed to the operation of tapping, which offers the most reasonable chance in the complaint when performed early.

Tapping is a simple operation. The spot chosen for the opening should be upon the linea alba, midway between the umbilicus and the sheath ; in the mare between the umbilicus and pubes. This point should be chosen for the puncture, which ought to be made directly upwards ; and both this and the former operation for wind must be conducted and treated upon similar principles, with the exception that in ascites the whole of the fluid may be evacuated at once, and allowed further to drain off by the simple application of a linen bandage. Should benefit be derived, endeavour to prevent a recurrence by strengthening the general habit.

Swelled legs shall receive separate consideration, for obvious reasons.

WORMS, BOTS, AND PARASITIC ANIMALS.

Worms, most frequent in the stomach and bowels of the horse, have been found in every part of his system. In abscesses, in the mesenteric glands and artery, in the substance of the abdominal muscles, in the liver, in the windpipe, in the salivary ducts, and even in the pancreas.

The worms most generally found in the stomach of the adult horse are *Bots*. The parasite most inimical to colts is the *tania*, or tape-worm. *Lumbrici teres*, or round-worms, most frequently found in the small intestines ; *Ascarides*, a small worm infesting the large intestines ;

and *Strongyli*, found occasionally not only in the bowels but in the kidneys and coeliac artery of both man and horse.

The groom always pronounces the symptoms of chronic indigestion to be what he calls "a wormy condition." The consequence is that the most potent "worm-powders," most of them so strong as to imperil the life of the animal, are at once administered, with what result, in hundreds of instances, we need not say. Ignorance, "with the best intentions," is the most charitable verdict.

Bots.—They are very frequent in horses that have been at grass, and are in general found adhering to the white insensible tissue or coat of the stomach.

They usually hang in dense clusters to this white cuticular lining of the stomach, and maintain their hold by means of two dark-brown hooks, between which a longitudinal slit or fissure is seen, which is the mouth of the larva. When removed from the stomach by the fingers by a sudden jerk, so as not to injure them, they will, if fresh and healthy, attach themselves to any loose membrane, and even to the skin of the hand. For this purpose they sheath or draw back the hooks almost entirely within the skin, till the two points come close to each other; they then present them to the membrane, and keeping them parallel till it is pierced through, they expand them in a lateral direction, and afterwards, by bringing the points downwards towards themselves, they include a sufficient piece of the membrane to remain firmly fixed for any length of time as at anchor, without requiring any further exertion.

These bots, as is also the case with two or three other species, pass the autumn, winter, and spring months in the stomach, and arrive about the commencement or middle of the summer at their full growth, requiring a twelvemonth fully to complete their structure.

The Fundament Bot.—The part chosen by this insect for the purpose is the lips of the horse, which is very distressing to the animal from the excessive titillation it occasions; for he immediately after rubs his mouth against the ground, his fore legs, or sometimes against a tree, with great emotion, till the animal at length, finding this mode of defence insufficient, quits the spot enraged, and endeavours to avoid it by galloping away to a distant part of the field. And if the fly still continues to follow and tease

him, his last resource is in the water, where the cestrus is never observed to pursue him. These flies appear sometimes to hide themselves in the grass, and as the horse stoops to graze they dart on the mouth or lips.

The *Tenia*, or tape-worm, infesting the horse is a long, flat, jointed worm, every joint of which, when broken, will form a new animal. It has been found from twenty to fifty feet in length, and an inch in breadth. The colour is dirty white. Its head, which is tuberculous, is placed at the slenderest end of its body, and is said to be always directed towards, and sometimes to be actually within, the pyloric opening of the stomach.

The *Lumbricus* is a round worm, found oftener in the small intestines than in the stomach. The *lumbricus* is often found in the dung of horses, nearly as thick as the little finger, and from three to fifteen inches in length. Gibson says: "I have seen them eighteen inches long, and larger than a man's finger." The worm is largest round its middle part, from which it tapers off to each end, where it is pointed. They are more generally white than red. A French veterinarian, Chabert, says he found fourteen pounds of them in a horse's small intestines; and balls of them are often found in aged horses' small guts, complicated with bots (if the animal has been at grass), clinging to the vascular part of the stomach itself. They are always sheathed in mucus.

Ascarides.—Of these eighty species have been described; one, the small, needlelike, lively parasite which we find so commonly tormenting the rectum of the horse, is the only variety we are concerned with. It is thin as a stocking-needle, inhabits the large guts, and is often found in the blind pouch of the cæcum. It is sharp at one end and blunt at the other, seldom more than half an inch in length, and of a dull white. It frisks, or coils eel fashion, when immersed in fluid, and is often detected escaping from the anus.

The *Strongylus* is an allied worm to the *ascaris*, but is distinguished by the power of eating through or perforating important structures. It is slender, from two to four inches in length, consisting of two distinct portions—a body, constituting not quite one-half of its entire length, rather smaller than a crow-quill, to which is appended a contracted threadlike part, or tail, making up the remainder of

its length. When first voided the body appears black, the tail transparent. No sooner, however, are they taken out of the dung than they vomit up their black contents, which have the appearance of writing ink ; and then their bodies, like their tails, become transparent. This ejection seems to be their last act of life, for they never move afterwards, but gradually shrink and dry up to almost nothing. Numbers of strongyli were voided by a young horse, under the operation of physic, who had given no reason to believe he harboured worms of any sort.

Symptoms.—The best known symptom of worms in the rectum, or cæcum, is a dry yellow matter under the tail ; but it is not invariably present even when worms are known to exist. When worms are irritating, there is unequal appetite and an irregular state of bowels, at one time costive, and at another loose, with glair or mucus around the dung-balls. When ascarides prevail, the horse is much disposed to rub the tail, to ease the itching of the fundament. The presence of bots is seldom detected by any distinct signs except in the spring, when one or more may be detected half protruded through the anus ; the reason of its appearance being that the time has arrived for it to quit the state of a grub for that of a fly. The *lumbricus*, or round worm, is probably the most generally found ; but it is only when it exists in great numbers, or itself becomes morbidly irritated to seek a change of situation, that it seems to trouble the animal. This symptom also applies to ascarides, in which cases both may interfere with digestion and the regular bowel discharges. The provender of the horse, although he eats heartily, does not digest healthily. The skin, also, sympathising with the stomach and intestines, occasions a staring coat and harsh feel of the hair. There are frequent attacks of slight gripes ; the horse stands with his legs wide apart, and his belly hangs low. The breath is often hot and fœtid, and it is not unusual for a short dry cough to be present. Worms, however, exist without any of these symptoms. Whoever will take the trouble to visit a knacker's, and to turn over the dunghill in his yard, will find it to be composed quite as much of worms as of excrement. This dung is taken from the aged horses sent to be slaughtered, and is sufficient proof that worms are much more common than is generally supposed.

Treatment of Worms.—Nature has endowed these animals with such tenacity of life that no matters known to us will effect their destruction, though a few may answer the purpose of their expulsion. Bots are so hardy as apparently to survive immersion in oil, in alcohol, spirits of turpentine, and even powerful solutions of mineral acids. The continued use of salt mixed with the food appears, however, obnoxious to them, for sometimes under its use their hold gives way, and they are ejected. Bitters, purgatives, and the mechanical irritation of pointed bodies, as pewter, tin filings, etc., have no effect whatever upon bots; but with regard to the other parasites, rather more success may be expected from medical aid in the form of vermifuges. It has been attempted to effect the removal of worms mechanically, by dissolving the mucus they are supposed to be imbedded in, for which purpose lime-water, oil, solutions of aloes, etc., have been injected by clyster up the rectum, and which practice is most to be depended on for the ejection of ascarides when in the rectum.

This practice of washing away the mucus of the intestine, and thus depriving the intestine of the secretion given for its protection, is not to be recommended, though oil for this end would be harmless. Strong purges are given with the same intent, which may remove them also from the whole alimentary canal. Remedies have likewise been exhibited to destroy them within the body by the mechanical irritation of their spicula, under which view tin, brass, iron, pewter, are thought remedial. The Indian caustic barley and Indian pink are reputed vermifuges against the teres and ascaris. The oil of turpentine has also been strongly recommended as an excellent general vermifuge; but, except for the destruction of the tænia, or tape-worm, it does not appear to deserve that character.

The mode most in favour with modern practitioners is to give the horse having worms a drachm, or two drachms, of tartar emetic for six mornings running. The tartar emetic is to be administered in the form of a ball, and to a fasting stomach. On the seventh, administer a sharp dose of aloes to drive out the parasites enfeebled by the previous medicines. Mr. Spooner recommends the following:

White arsenic	5 grains.
Powdered cantharides	6 grains.
Sulphate of iron	2 drachms.
Tartarised antimony	1 drachm.

Mix with a handful of bran, and give in a feed of corn every evening for a fortnight. Administer a dose of "physic" after two-thirds of the medicine has been given, and, as soon as it "sets," the remainder.

Under *Vermifuges* will be found some formulæ and remarks. Mayhew gives a scale of doses of turpentine adapted for the different ages of the horse: *e.g.*, for a three months' foal, half an ounce; for a six months' foal, an ounce; one year old, an ounce and a half; two years, two ounces; three years, three ounces; four years and upwards, four ounces. Take one pound of quassia chips, pour on them three quarts of water, strain, beat up the turpentine with yolks of eggs to make it blend with the infusion, add one scruple of powdered camphor, and give fasting in a drink before any food in the morning. If the *tænia* are expelled, a tonic (see *Tonics* in List) till the coat is smooth.

CRIB-BITING AND WIND-SUCKING.

This curious and dangerous practice, which rapidly grows into a confirmed habit, and is taught to or initiated by animals who have the misfortune to be stabled with those confirmed in the vice, has been the subject of much extravagant speculation and wild theory.

The premonitory symptom of a resort to crib-biting is that of heartburn. The animal begins by licking the manger, and if there should be iron anywhere, which imparts a sense of coolness, that is particularly grateful. The licking of cold substances is a sign of disordered stomach. The act of crib-biting is thus performed: The incisor teeth are firmly pressed against any solid substance, say the edge of the manger; he violently extends his neck, and then, after a convulsive action of the œsophagus, a portion of gas is belched up with a grunting noise. This heated air expelled, the animal draws in his breath with a sucking sound, and the horse finds relief in the process. As the animal will leave the most tempting food to go

through this peculiar performance, we cannot look upon it in the light of a mere habit, but as an instinctive mode of seeking relief, sometimes practised when the first motive has ceased, and hence becoming an inveterate propensity.

We find, then, that crib-biting is most prevalent among horses that pass long, weary intervals in the stable, consuming a diet of "oats and hay, varied," as Dr. Kitchener facetiously says, "by hay and oats, for a change." Such an animal, in a close and impure atmosphere, and without the slightest excitement for eye, ear, or brain, may well have a disordered stomach, and fall into a solitary and, to him, agreeable pastime. Crib-biting has been cured in an early stage by a common stimulant; and this would point to a confirmation of our opinion. A lump of rock salt placed in the manger has stopped it, to which we would add another of chalk, or damp the food and sprinkle on it carbonate of soda.

The name "crib-biting" is a blunder. The horse does not "bite" his "crib"; the manger is simply used as a point of pressure for the upper teeth, and thus the animal is enabled by pulling back to act on the muscles of the gullet, and to force a portion of the offending acid gas up a passage which is so constructed as to prevent vomiting. The human being in a state of dyspepsia is relieved in like manner by an eructation, but through a more open channel.

For the cure of crib-biting a turn out at grass is recommended. This arises from a misapprehension of the case. The crib-biter will at once make for a gate-post or rail as soon as the fit comes on.

We would advise in every case the treatment of crib-biting as a case of windy colic, chronic gastritis, or of indigestion, according to the methods already laid down; and where it is evident that the practice has, which we doubt, become a mere wanton pastime, to try the muzzle, not neglecting to persevere with the medicinal remedies.

Wind-sucking we take to be an imaginary variety of crib-biting—a distinction without a difference.

III.—Diseases and Injuries of the Peritoneum and Intestines.

INFLAMMATION OF THE BOWELS—DYSENTERY—STRANGULATION OF THE BOWELS—RUPTURE.

INFLAMMATION OF THE BOWELS.

The three varieties of inflammation of the bowels are called *Peritonitis*, inflammation of the investing membrane; *Enteritis*, inflammation of the muscular coat; and *Dysentery*, inflammation of the mucous or internal coat, and synonymous in veterinary practice with human diarrhœa.

Peritonitis is so little different either in its symptoms or treatment from *Enteritis* that we may defer directions to that head.

Acute peritonitis is seldom met with except as the result of injury, such as accidents in castration, puncture of the belly, an overstrain in leaping, or over-exertion.

ENTERITIS.

The intestines are composed of three layers of substance, called coats, any one of which may become the seat of inflammation, to the exclusion—although all three are intimately connected—of the other two, or at least so far to their exclusion that the others appear to be but secondarily and comparatively mildly affected. Enteritis consists in an inflammation of the middle or muscular coat—that which forms the principal substance of the gut.

Enteritis sometimes commences by a shivering fit, to which succeed heat of skin, restlessness, loss of appetite, the mouth being particularly hot and dry, the inner membranes of the eyelids and the linings of the nostrils being rather redder than natural. As the inflammation advances the pain increases, so as to force the horse to lie down and get up again frequently; yet, unless the pain be very acute, he seldom rolls on his back, or remains stationary there; but as he will occasionally do so in particular cases, this should not be considered as a criterion between this disorder and gripes. He will kick at his belly, stamp with his feet, scrape his litter or stall with his hoofs, and look wistfully round towards his sides. The pulse in most cases is

frequent, as 90 or 100, and invariably very hard, small, and wiry. The breathing is accelerated; the belly is sometimes painful to the touch, which never occurs in colic; it is also hot to the feel, and the pain, instead of remitting as in colic, is constant, the extremities being cold, while the surface of the body is often warm. The bowels are usually constipated, and if any dung be evacuated, it is small, hard, and in dry masses. The anus, if examined, will be found very hot, and if the hand be intruded up, it will be felt sometimes even internally inflamed; it also, in many cases, quivers with the intensity of the general affection. Frequently, towards the later stage, there is some tympanitis, or distension of the belly, which much aggravates the general tenderness evinced on examination. The urine is painfully evacuated in small quantities, and very highly coloured; sometimes it has much mucus suspended in it. In the progress of the disease these symptoms increase in intensity: the distress of the horse is expressed by his groans, his violent efforts to change his position, as if to fly from his malady; while perspiration, partial or general, breaks out, and is then succeeded by a chilly state, with muscular twitchings; the pulse becomes more and more hurried, intermittent, and at last nearly imperceptible; the respiration is as quick and irregular as the pulse, and occasionally interrupted by a convulsive sigh. The vital powers are now fast ebbing, and the animal sinks after a few feeble struggles, or he parts with life with more violent convulsive movements.

Treatment.—We should immediately have recourse to bleeding, and that as extensively as possible. For this purpose a large opening should be made in the jugular vein, or one on each side, and from six to eight quarts taken as quickly as possible, continuing the bleeding till the pulse becomes almost imperceptible. The bowels being costive, the dung should be removed by back-raking, and a copious injection thrown up. A pint and a half of linseed oil and one drachm of powdered opium may next be given; and a half pint of the oil, with half a drachm of opium, may be repeated every six hours till the bowels are relaxed; the injections being also frequently repeated.

The abdomen should be fomented with very hot water, which should be continued for some time; and it will afterwards be very useful to apply hot sheep-skins, just

removed from the dead animal, to the abdomen, the woolly side outermost. If these cannot be procured, the fomentations should be repeated, or the abdomen may be stimulated by a blistering application. The legs must be kept warm by flannel bandages, assisted, if necessary, by rubbing in a stimulating liniment composed of oil and spirits of turpentine. During the continuance of pain the horse will, of course, take no food; nor is any desirable. He will most probably be disposed to drink, of which circumstance advantage should be taken by offering him oatmeal gruel, or linseed tea, as often as he will take it.

If relief be not obtained in the course of six hours, our prognosis will be unfavourable, particularly if, on again resorting to bleeding, we find the blood very dark and thick, and with difficulty obtained.

A second, and even a third bleeding should be tried, though in less quantity than at first. If the pain ceases, or greatly diminishes, the pulse becoming more distinct or moderate, we may then augur a favourable result, which opinion will be greatly strengthened by the bowels becoming gradually relaxed. If a favourable result should attend, great caution is necessary for some little time as to the diet, and soft food should be given for several days.

DYSENTERY.

This disorder is an inflammation of the internal surface of the bowels. It is caused by obstructed perspiration; the continued use of certain kinds of food; but more frequently by the injudicious administering of improper purgatives, either as to quantity or quality, by which such irritation is brought on as ends in inflammation. Dysentery is commonly accompanied with purging, whereas enteritis is almost always associated with costiveness; neither is the pain so acute in dysentery, consequently the horse seldom expresses his uneasiness by rolling or stamping; the pulse is also quick and small, but is seldom very hard, even from the beginning. However urgent may be the symptoms, and whatever the pulse may denote, no blood must be withdrawn in this disorder; for it is inflammation of the mucous membrane, and after all we can do to support the horse, he will hardly have strength to get through the

attack. Stimulants should, however, be applied to the bowels, as in inflammation of the intestines, properly so called. The stable and the clothing also should be warm, and means should be taken to keep up the circulation in the extremities by hand-rubbing and bandaging. The following drink may be given every two hours:

Prepared chalk	1 ounce.
Laudanum	2 ounces.
Liquor potassæ	1 ounce.
Tincture of catechu	$\frac{1}{2}$ ounce.
Tincture of ginger	1 ounce.
Tincture of capsicums	2 drachms.
Water	1 pint.

Mr. Spooner's prescription is more simple:

Powdered opium	1 drachm.
Powdered catechu	2 drachms.
Prepared chalk	1 ounce.

In thick gruel made from wheaten flour, or in boiled starch.

Throw up frequent injections of rice-water, and have a pail of thin cold gruel in the manger, which, however, should be repeatedly changed, though most likely the poor animal will drain it almost as fast as it can be prepared.

The reader is referred to the preceding section under the heads *Diarrhœa* and *Costiveness*.

STRANGULATION OF THE BOWELS.

Strangulation, intervagination, volvulus, or intus-susception—for by these names a twisting, knotting, or unnatural torsion of the bowels is called—is more frequent than has been supposed, fatal cases of this disorder having been often treated as colic, and *post-mortem* examination neglected.

Intus- or Intro-susception means the slipping of one portion of intestine into another—commonly into the one behind it. In the human subject, especially in children, this appears to be an accident by no means uncommon, and

one that happens and rights itself again without any knowledge on the part of the person in whom it occurs.

The Symptoms.—Internal stricture and strangulation of intestine are, in general, violent to a degree, though the same in kind as result from colic, or rather enteritis. The poor sufferer paws, and lies down, and rolls, and looks at his flank, and pants, in horrible agony; his belly becomes tympanitic, tense, and enlarged; and his pulse is quick and small, 70 or 80, but not thready. For the first three or four hours all that we do appears of no avail. Afterwards a calm takes place, and we are apt to think our remedies have worked it; if, however, we again examine the pulse, we shall find our patient evidently sinking, perhaps, at the time, all over in a tremor and cold sweat. This deceitful calm is nothing but the too certain precursor of mortification. The animal commonly dies in convulsions.

RUPTURE (HERNIA).

We shall here confine ourselves to a displacement of the intestines from the abdominal cavity, either through some of the natural openings, or through artificial ones, as the effect of accident.

The places where these protrusions commonly take place in the horse are the groin, the navel, the sides of the belly, and the diaphragm. It is these differences in situation that constitute the different sorts of hernia: that protruding at the groin, called inguinal; the same extending through the canal and descending into the scrotum, called scrotal; that at the navel, umbilical; that apparent upon any part of the belly (the navel excepted), ventral; the one passing through the diaphragm, diaphragmatic.

The parts protruded in hernia are commonly either the intestines or the omentum, or both. Every viscus, however, even the thoracic and cerebral, is liable to hernia.

Hernia is again divided into reducible, irreducible, and strangulated. When the contents of the tumour admit of being returned into the abdomen, the hernia is said to be a "reducible" one; when, either in consequence of their bulkiness, or their adhesion to the sac containing them, or to each other, that is found impracticable, the hernia becomes an "irreducible" one. Should there be constriction at the mouth or contracted part of the sac, which in

inguinal hernia is at the internal abdominal ring, to that degree that the circulation is either impeded or altogether arrested, the hernia is said to be "strangulated."

The *causes* which produce hernia are various, but all arise from violence of exertion, or the effects consequent upon external injuries. With us the efforts used in racing, and the leaps taken in hunting, are causes, as we may readily suppose when we consider that the dilatation of the abdomen, restrained as it is by weight and tight girthings, must press backwards the intestinal mass. Rearing and kicking also, and being cast for operations, particularly the rising up after castration, have all brought it on. Blows with a thick stick or from the horn of a cow may likewise induce it.

The *symptoms* of strangulated hernia are in this respect very similar to acute enteritis; there is the same uneasiness, shifting of position, getting up and lying down again. The horse rolls in the same manner, and in turning on his back sometimes seems to get a momentary respite from pain. Yet it is but momentary, for the suffering is not one of remission; it is constant. This serves as one distinguishing mark between it and spasmodic colic, with which it has been confounded. In stallions, the testicle on the ruptured side is drawn up to the abdomen, and is retained there, with only momentary fits of relaxation; the scrotum often drops with sweat. Towards the last the pulse is quick and wiry; the horse paws, looks at his flanks, but seldom kicks at his belly. We assure ourselves of hernia by an oblong tumour in the groin, of larger or smaller bulk; hard or soft, as it may contain either fæces or gas, in which latter case it will also be elastic. When the tumour is raised by the hand, or pressed, a gurgling sound is emitted; or if the horse be coughed, it will be sensibly increased in dimensions. The Schneiderian membrane is often injected, and the horse gazes at his groin or scrotum.

Treatment.—A surgical operation in most cases is required, which can only be performed by a veterinary surgeon.

CHAPTER XXII

THE HORSE IN SICKNESS AND DISEASE

DISEASES AND INJURIES OF THE LIVER.

INFLAMMATION OF THE LIVER—JAUNDICE—ENLARGEMENT
OF THE LIVER—RUPTURE OF THE LIVER.

THE liver of the horse is less frequently diseased in early and middle life than in man and many other animals. Oxen and sheep, having a gall bladder and cystic duct which the horse has not, are more liable to biliary obstructions. Cows are specially the subject of liver disorder, called by herdsmen and cow-doctors by the characteristic name of "the yellows."

The chronic or torpid state of the disease, which is very common among high-fed and slightly-worked carriage and brewers' horses, may be unsuspected till the animal is suddenly seized with gripes, or otherwise shows signs of being seriously ill. These symptoms are caused by the rupture of the fibrous case of the liver, and the escape of blood into the peritoneum or serous covering of the huge gland. It is then almost too late to try calomel. A few days' quiet, and a dose to open the bowels, will be all that can be ventured; and the horse is returned to its owner, with a caution to work him gently and feed him sparingly for the future. Such cautions, however, are rarely long attended to.

Treatment.—In the first instance four to six quarts of blood should be abstracted, and this immediately followed by ten drachms of purging mass in a ball, or twelve drachms in solution, the operation of which may be accelerated by the occasional administration of a clyster. Calomel, and, indeed, every other preparation of mercury, being a stimulant to the liver, is to be scrupulously avoided. As soon as we perceive the physic to be setting, should there be occasion for it, we may take away another gallon of blood, and at the same time, after having had the hair shorn off, apply a blister to the right side, extending it from the borders of the ribs as far forward as the place of girthing. The first dose of medicine once "set," we may resume our operation on the bowels by giving daily the

following ball, omitting it only at such times as purgation shall have recommenced :

Take of Purging mass	2½ drachms.
Powder of digitalis	1 drachm.
Powdered nitre	3½ drachms.
Soft soap, sufficient for a ball.	

Should the blister not have taken proper effect, twelve hours after its application it may be repeated. In case the disease appear to be merging into the chronic form, the insertion of two or three setons through the skin of the right side is a commendable practice.

JAUNDICE.

The remarkable yellowness of the skin, eyes, and mouth in this disease have obtained for it the name of "Yellows."

The *symptoms* of jaundice are the same as those of hepatitis. It has been said that vetches and green food produce jaundice. We do not believe it. Its treatment is, like enteritis, by alternatives. Try the following:

Calomel	½ drachm.
Aloes	2 drachms.
Powdered gentian	2 drachms.
Castile soap	2 drachms.

Form into a ball, and give night and morning until the bowels are actively purged ; then continue only so much of the same, for a week or ten days, as will keep the bowels lax, not in a purging state. If the symptoms be such as bespeak chronic inflammation or incipient consolidation, blister the right side. In cases where costiveness is not present, but, on the contrary, a relaxed state of the bowels appears, give the following :

Calomel	1 scruple.
Blue vitriol	½ drachm.
Gentian, in powder	3 drachms.
Oak bark, in powder	3 drachms.

Make into a ball, and give night and morning, unless the

calomel should affect the mouth, in which case give only once a day. Should the looseness increase on this plan, add powdered opium, a drachm to each ball. In all cases of yellows a change of food is proper, and generally necessary. In winter, spear the corn, or give carrots; in summer, soil, or give green grasses; but in such case avoid exposure to the night air, making use of moderate clothing so long as the calomel is continued.

ENLARGEMENT OF THE LIVER.

Unnatural enlargement of the liver sometimes takes place. It is swollen to two or three times its natural size; it presents an appearance of general congestion; it becomes gradually filled with a black, bloody fluid. The progress of this variety of liver disease is uncertain, generally slow, and almost invariably fatal.

The symptoms are an enlarged and tense abdomen; the bowels sometimes constipated, at other times relaxed; there is sometimes considerable thirst; the pulse is accelerated to 100 or more, loud and thumping, and easily mistaken for a primary affection of the heart.

The most effectual treatment will consist in a cautious administration of laxatives, accompanied by diuretics and counter-irritants. To this tonics may succeed. In my opinion the ioduret of iron, in doses of half a drachm, two or three times every day, would be preferable to any other medicine.

One post-mortem examination presented the liver about three times its natural size, and consisting of a mass of coagulated blood.

RUPTURE OF THE LIVER.

As there is no curative treatment for this lesion, we shall dwell on it briefly. The age, and habits, and condition of horses disposed to this accident are such as conduce to and indicate some morbid condition of the liver. Enlargement and degeneration of substance alike conduce to rupture. In fact, we know nothing about it until the subject of it comes to die, perhaps from ruptured liver, and we find the gland clay-coloured, softened, and so rotten in texture that it will hardly bear handling without falling to pieces.

CHAPTER XXIII

*THE HORSE IN SICKNESS AND DISEASE*DISEASES OF THE URINARY ORGANS, AND OF
THE ORGANS OF GENERATION, IN THE HORSE
AND MARE—FOALING.

I.—The Urinary Organs.

INFLAMMATION OF THE KIDNEYS—DIABETES—ALBUMINOUS
URINE—BLOODY URINE—INFLAMMATION OF THE BLADDER.

OVER-EXERTION, particularly under heavy burthens, is one grand cause of kidney disease; medicine and food possessing diuretic properties constitute another; bearing which in mind, it will at all times become a leading desideratum in the treatment, to take care to remove or avoid the repetition of such influences. The kidney of the horse is a peculiarly susceptible organ. It is easily acted on; and many—indeed most—medicines that we are in the habit of using take some effect or other upon it. This is one reason why so very few medicines will purge horses: the majority of them being so readily carried out of the system through the kidneys.

Inflammation of the kidneys, as a primary disease, is not very common with the horse, but by its fatal tendency, it becomes important. Small as these organs are, they are most essential to life, and the quantity of blood passing through them is very great; therefore, we cannot wonder at their aptitude to inflame, nor the great derangement that inflammation occasions the machine.

The causes are, exposure to cold, standing in the rain, water dropping on the loins we have known bring it on; a heavy, awkward rider by his motions, or even the action of the psoæ muscles in great exertion, may bruise the kidneys; and occasionally it may be caused by a sympathetic inflammation. Mow-burnt hay, musty or even kiln-dried oats, in common with other diuretic substances, which under the name of staling or urine balls, are such favourites with every groom, may produce it. It may terminate in resolution, suppuration, or gangrene.

Symptoms.—Dull appearance; pain, expressed by looking

at the flanks ; urine made frequently and in small quantities, with much effort or groaning ; often red or bloody, and as the inflammation increases, almost wholly suppressed ; still attempts are made by the bladder to evacuate, and the mucous secretion from the organ and urethra only are pressed out with much pain. Pulse at first rather hard, frequent, and somewhat full ; but, as the disease advances, it becomes smaller, oppressed, and intensely quick. The animal stands with his legs wide apart, as though going to stale, and shrinks when the loins are pressed. If it be an entire horse, the spermatic glands are alternately drawn close to the belly, and pendulous or relaxed. To distinguish it from inflammation of the body of the bladder, or from spasm of the neck of that organ, the horse should be examined by passing the hand up the rectum ; when, if the inflammation exists in the kidneys, the bladder, whether it contain anything or not, will not be hotter than the surrounding parts, or more tender ; but should the affection be confined to the body of the bladder, it will be surely found empty, but very hot and painful to the touch ; if, again, spasm of the neck of the bladder, as sometimes happens, should be the seat of the disease, no heat or tenderness will be felt, but the bladder will be found distended with urine. The horse shows much disinclination to move, straddles wide behind, and his back is "roached."

Treatment.—This must be directed to the equalisation of the arterial action. Back-rake, and examine carefully by inserting the hand up the rectum, and feeling for heat and tumefaction of the diseased organ. Throw up frequent clysters consisting of cold water, in every gallon of which one ounce of sulphuric ether and one ounce of crude opium are dissolved, both with a view to promote a soluble state of bowels, and to act as a fomentation to the inflamed organs ; and if any costiveness be present, give a purgative without any diuretic substance intermixed. It should, because aloes contain resin, consist of linseed oil, a pint and a half, in which a drachm of chloroform is mingled ; and one half of this may be repeated in six hours if the animal display no improvement. It will be prudent also to endeavour at exciting an external inflammation on the loins. The administration of cantharides is here questionable from a disposition in them to stimulate the kidneys. Turpentine, for the same reason, should not be applied ; but

no such fear prevents the use of liquor ammoniæ in the manner before directed when treating of enteritis; neither can any objection be formed to the application of a simple mustard poultice, which may be renewed every two hours; and if a newly-stripped sheepskin be laid upon the place the liquor ammoniæ or mustard poultice has occupied, the activity of each will be increased.

In acute pain give belladonna extract, half a drachm, and crude opium, two drachms, thrice a day, in linseed meal and honey. Without giving violent sudorifics, which would increase the action of the heart and arteries, we should attempt to moderately determine the blood to the skin and the limbs by clothing, friction, and bandaging up the extremities; as well also by nauseating the stomach with white hellebore. Injections of warm linseed tea may be thrown up every two hours, and a pail of the same placed before the horse; he will want no other provision during the attack. Diluting liquors are among the best means of lessening inflammation, for which reason a pail of tepid gruel should be kept constantly in the manger. These cases, however, generally last some time, during the whole of which the efforts should be continued, and exertion only relax as death, from known and well-marked signs, appears certain.

Percivall says: "Should the inflammation not abate, keep the bowels soluble and the skin supple by the following:

Purging mass	.	.	.	.	1 drachm.
Tartarised antimony	.	.	.	.	1 drachm.
Carbonate of soda	.	.	.	.	3 drachms.

Mucilage to make a ball. If this produces purging, reduce the purging mass to half a drachm, or discontinue."

The general symptoms of kidney disease are fœtid, bloody, or filamentous urine; a small irregular pulse; recurrence of sweats, especially in the flanks; these ceasing, the patient falls, and convulsions close the scene. The gait of the horse and his wide mode of standing are characteristics of these disorders. The animal, too, can bear no pressure on the loins. In some cases he will resist in evident agony any attempt to press his back, at others he will sit down on his hinder parts like a dog, and there is obstinate retention of both urine and fæces.

DIABETES.

Diabetes, polyuria, or profuse staling, has been divided into a number of distinct disorders according as the composition of the urine exhibited different constituents or proportions. Thus we have watery diabetes, sugary diabetes, etc. We shall here merely speak of excess of urine, as inflammation is already mentioned as the cause of deficiency.

The symptoms, in ordinary cases, attendant upon this immoderate flux of urine are insatiable thirst, with, unless this be satisfied, a refusal to feed as usual, unhealthy appearance of the coat, dispiritedness, inability to bear fatigue, loss of flesh, and debility.

The quantity of urine voided in some of these cases is so great as to be quite incredible. The stall is deluged with the flow. In an account of the disorder as it occurred at one time, Lassange informs us the horses attacked voided five or six pints of perfectly clear urine every hour.

The urine is thin, aqueous, and perfectly transparent. Carbonate of lime, sulphate of soda, muriate of soda, benzoate of soda, and phosphate of lime, amounting altogether to one-eighth of the fluid, and seven-eighths of water, make up the healthy urine of a horse; but in simple diabetes the water forms more than ninety-five per cent. of the fluid.

Treatment.—Should the animal be attacked during the spring or summer season, a desirable change would be from the stable to the grass-field; or, when this cannot conveniently be done, soiling may be practised with advantage. Should the water appear to be the cause, and there be no means, or very great difficulty of obtaining any other kind, we may put a piece of chalk into the pail with a view of neutralising the obnoxious impregnation.

The medicines most serviceable in this disorder are astringents and tonics. Mr. Percivall's prescription is composed of sesqui-carbonate of iron and prepared chalk, of each half an ounce, made up with syrup, and given once a day. Mr. Castley gave powdered galls, alum, and bole armeniac, each one ounce, ginger one drachm, in a quart of beer; half at night and half in the morning. Mr. Stewart speaks in laudable terms of opium. He recommends daily

a ball consisting of three drachms of opium, and of catechu, gentian, and ginger, two drachms of each, made up with a little tar.

Should fever exist, such medicines, of course, become inadmissible. In their place moderate blood-letting and purging must be practised. In case the urinary disorder outlive the febrile one, which it will not often be found to do, recurrence may be had to the opiate and astringent medicines.

A pail of linseed tea, made by pouring boiling water on whole linseed, and letting it stand till lukewarm, should stand within reach. Attend to the skin, and employ friction if the horse takes it kindly. A ball daily of one drachm of iodide of iron, with linseed meal and honey, or a drink of phosphoric acid, one ounce to a pint of water, is extolled, and rightly, by Mr. Mayhew. The iodide of iron acts as a tonic, and reduces thirst.

ALBUMINOUS URINE—BLOODY URINE.

Albuminous, or *Serous*, *Urine* is a symptom of kidney disease which it is well to be acquainted with. The water becomes of a deep straw colour, and thick as a solution of gum water. With a test of bichloride of mercury it will precipitate a copious milky flocculence, resembling white of egg, which may be coagulated by heat or a little vinegar and prussiate of potass. The symptoms, as in other kidney disorders, are straddling behind and "roaching" the back, though sometimes the straddle is made backward, and the spine curved in, with an expression of intense pain. Stimulants, mustard plasters, sponged off before destroying the hair, are first employed, then abstinence from exercise, and, finally, opium in repeated doses, are our only dependence.

Hæmaturia, or *Bloody*, *Urine* is a complaint often met with, and our first suspicion is that a strain, blow, or other injury should be looked for. The blood may come in clots, or mixed with the urine, or show itself in its pure form only upon coagulation.

The *Treatment* is guided by the circumstances of the origin of the attack. Examine the kidneys by the rectum, and sweat the loins and pelvis; then let the animal rest without any disturbance or irritation, and administer gently

two drachms of *acetas plumbi* in half a pint of cold water; then, in a quarter of an hour, give the like dose of the acetate of lead, with one ounce of tincture of opium. Repeat these till four doses are given, when, if the patient is not benefited, take four drachms of the ergot of rye, and infuse in a half pint of boiling water; when cool, add one ounce of laudanum, and four of dilute acetic acid. Throw pails of cold water from a height upon the loins, and inject cold water *per anum*. Should the hæmorrhage cease, and the kidneys not be enlarged or hardened (scirrhus) give the following:

Extract of catechu	.	.	.	.	1 ounce.
Oak bark infusion	.	.	.	.	3 pints.
Alum	.	.	.	.	1 ounce.
Sulphate of iron	.	.	.	.	1 ounce.
Muriatic acid	.	.	.	.	6 drachms.

This quantity to last the day, administered at four, five, or six periods, as most convenient.

INFLAMMATION OF THE BLADDER.

Inflammation of the bladder is said, but not proved, to be more common among mares than horses; but of all the causes of this affection none can compare with the powerful diuretics in general use with every stableman or groom. The symptoms are frequent—nay, continual—emissions of small quantities of urine, voided with much straining, during which the dung commonly is passed. The bladder will be felt by the greased hand passed gently up the rectum, hot, tender, and contracted into a firm substance of about the size of a cricket ball.

The treatment is the same as for inflammation of the kidneys, and equally as urgent; every precaution pointed out when treating of inflammation of the kidneys should be rigidly adopted; in addition to which warm water, in every gallon of which a quarter of a pound of gum-arabic and an ounce of crude opium have been dissolved, may be injected into the bladder by Read's syringe with an elastic catheter attached.

II.—Diseases and Treatment in Connection with the Reproductive Organs.

SYPHILIS NON-EXISTENT IN THE HORSE—PHYMOSIS AND PARAPHYMOSIS—VAGINITIS AND LEUCORRHOEA (WHITES)
—FOALING—CASTRATION.

Extensive and important as the variety and modes of treatment of the diseases of the sexual organs are in human surgery, the absence of those vices in the lower instinctive animals to which proud reasoning man is prone fortunately renders this branch of veterinary science comparatively meagre. The practice of castration, too, makes disorders of the testicles nearly a blank, except to veterinarians practising in breeding or racing establishments, where entire horses are more frequent. Even here disease is rare.

Phymosis is a contraction of the orifice of the sheath, which prevents "drawing," or protrusion of the penis. *Paraphymosis* is, on the contrary, a contraction of the sheath when the penis is protruded and swollen, preventing its being drawn back again, and thus bridling or strangulating the glans penis. Both of these occur from blows, kicks, contusions, or wounds. In the first, a troublesome disease ensues from the animal urinating within the sheath. In the second, which has been seen after accidents in attempts at copulation, a kick from a vicious mare—or worse, a blow from some human brute with stick or whip upon the yard while in a state of erection—the treatment is similar: cold lotions to abate inflammation; local scarifications, producing free evacuation of blood. If there are concealed ulcerations, or purulent collections in phymosis, we must cut through the prepuce, and slit it far enough back to insure its retraction, then treat the disorder as in cases of abscess or ulcerations elsewhere described. In paraphymosis, remember, all cuts must be made lengthwise, and along the upper part and sides of the penis, to avoid the urethra, and that they cannot well be too long, as they shrink upon the part recovering from its distention, and retiring within the sheath.

Whites (Vaginitis and Leucorrhœa).—These, to use the words of Percivall, is no more than *catarrh of the vagina*, an inflammation of the same sort as may attack the nose, the bladder, or any other mucous canal. Mares who are

not allowed the horse invariably have derangements of this kind during the spring season when "horsy." At times it is white like whey, at others yellow and almost purulent in character. The discharge collects, and comes away, when the lips of the vulva are opened, with a gush. A cooling drink, or a ball as follows, may be given :

Acetate of lead	1 drachm.
Opium	1 scruple.

Linseed and turpentine to form a ball.

An astringent injection five or six times a day :—

Decoction of oak bark	$\frac{1}{2}$ pint.
Sulphuric acid	1 drachm.

Mix.

Or,

Sulphate of zinc	4 drachms.
Distilled water	1 pint.

Sprinkle wheaten flour on the external organ and the inside of the thighs after the injection.

FOALING.

Parturition with the mare is generally a natural and unassisted act. Cases of protracted and difficult parturition do, however, occur ; and in these instances the veterinary practitioner should be *au fait* to the position of affairs, and the intelligent horse-master should not be under the tutelage of the farrier or the often pretentious groom. The principal cases that occur arise either from weakness in the mare, or from a disproportion between the foetus and the mother. False presentations are also to be witnessed, but chiefly of the back and croup: that of the back requires much labour, but the foal is to be delivered, the hind legs being presented, without turning in the womb being necessary. When, either from debility of the mare, or disproportion in the size of the foal, a natural birth is despaired of, the practitioner, having introduced his arm, and having ascertained that the presentation is a natural one, should draw the feet gently forward, and then

endeavour to place the head between them. If the head only is met with, seize it by the muzzle and draw it gently onward, searching for the feet, and drawing them one after the other in the line of the head ; which manipulations are, of course, only to be attempted during the throes of the mother.

So soon as the head and legs are got near the external orifice, enclose each foot within the loop of a rope, then, holding both ends so attached, endeavour to liberate the foal by steady, not violent, pulling, timing your pull with each throe or labour pain, unless by debility or protraction they have ceased. When this is the case, try to revive them by the administration of stimulants, especially infusion of the ergot of rye, in two-drachm doses every twenty minutes. Should this not effect the object within the hour, proceed to extract the foal ; longer delay may lose both mother and offspring. The blunt hook is sometimes used on these occasions where the hand cannot be introduced ; it is a powerful aid with those who can direct it skilfully.

When the obstruction arises from an unnatural presentation of parts—that is, of other parts than the head and fore feet, as of the loins, the croup, and one leg, the other being doubled backward—it is evident we should endeavour to change the position to the natural one (of the head) if practicable. If not, we must bring the hinder feet forward, and endeavour to make the extraction by this method. Lastly, if all these means fail, we must proceed to lessen the foetal mass by cutting out the embryo.

When, from weakness, a very narrow pelvic opening on the part of the mother, or monstrosity on the part of the foal, no efforts can bring the foetal mass away entire, it must be dismembered. A knife made for the purpose, having the blade concealed, with the haft lying within the hollow of the hand, is to be taken up into the vagina. We are told that occasionally hydrocephalus in the colt prevents the head from passing. Such a case will detect itself by the volume that will be felt on examination, and which will be easily lessened by plunging the point of the knife in the forehead, and evacuating the contents by pressing the skull in ; when, laying hold of the muzzle, the head may be brought through the pelvic opening. But it is usually the natural size of the head which forms the

obstruction, in which case the head itself must be removed. When the head has been dissected off and brought away, it will be necessary probably to contract the volume of the chest, which will not be difficult, by cutting the cartilaginous portions of the ribs, detaching the thoracic viscera, and then crushing or kneading the empty chest together ; after which, the rest of the body will offer little obstruction. When the head cannot be got at, the limbs must be detached ; after which the body, and at last the head, may be drawn out entire, or reduced for that purpose.

CASTRATION.

In England the practice of castration may be said to be almost universal, the exceptions being a small number of horses kept for racing purposes and covering, and a few entire horses used in draught and for "black jobs," where the stallion crest is considered to add to the majestic appearance of the animal. Length in the arms and wider-spread angles of the limbs are asserted to be obtained by early castration ; certainly the docility and steadiness of the animal are vastly improved. Hernia, founder, and some skin disorders are less frequent with geldings than entire horses.

The best period for castration depends much upon the breed of the horse and the class of work for which he is intended. If there is no object in obtaining a heavy and arched neck and a prominent crest, then the earlier the animal is castrated, the safer and simpler is the operation. From the fifteenth day to the fourth month is the most eligible period, and "foals castrated early grow larger than those cut later," says Mr. Brettargh, a veterinarian of extensive experience. He adds: "Colts are foaled with their testicles within the scrotum, which remain there, in ordinary cases, until the fifth or sixth month, when they are taken up between the internal and external abdominal rings, and there they remain until the eleventh, twelfth, or thirteenth month, all depending upon the degree of keep, as in some that are particularly well fed the testicles can at all times be found within the scrotum."

Colts, therefore, can be castrated any time between the first and fourth month ; and this period is preferred by some persons from the little disturbance it occasions to the

constitution. Some breeders of horses castrate at twelve months; others object to this period, because they think the animal has not sufficiently recovered the check experienced from weaning before this new shock to the system occurs. In the more common sort of horses, used for agricultural purposes, it is probably indifferent at what time the operation is performed, this consideration being kept in view, that the earlier it is done the lighter will the horse be in his forehand, and the longer it is protracted, the heavier will be his crest, and the greater his weight before, which in heavy draught work is desirable. For carriage horses it would be less so, and the period of two years is not a bad one for their castration. The better sort of saddle horses should be well examined every three or four months, particularly at the ages of twelve, eighteen, and twenty-four months; at either of which times, according to circumstances or to fancy, provided the forehand be sufficiently developed, it may be proceeded with. Waiting longer may make the horse heavy; but if his neck appear too long and thin, and his shoulders spare, he will assuredly be improved by being allowed to remain entire till six or eight months later. Many of the Yorkshire breeders never cut till two years, and think their horses stronger and handsomer for it. Some wait even longer; but the fear in this case is, that the stallion form will be too predominant, and a heavy crest and weighty forehand be the consequence; perhaps, also, the temper may suffer.

In regard to season and weather, the operator should—where he can—object to castrate either during very cold or very sultry weather, or while the horse is shedding his coat, or in the season when, or situation where, flies prevail. These precautions will especially demand attention when our subject is an aged horse, or one that has been highly groomed or fed. The time to be preferred is late in the spring, after the horse has shed his coat, and before the flies have made their appearance.

The colt should be prepared for castration by being kept on short diet for a few days, and his system slightly lowered, but by no means to a state of debility.

There are several methods of castration; the commonest with us is that of castration by cauterisation. The operation being one entirely for the surgeon, it need not be treated here.

CHAPTER XXIV

THE HORSE IN SICKNESS AND DISEASE

DISEASES AND INJURIES OF THE SKIN.

MANGE, ITCH—RINGWORM—SURFEIT—HIDEBOUND—LICE—
 LARVÆ IN THE SKIN—MALLENDERS AND SALLENDERS—
 WARBLER—SITFASTS—GALLS—WARTS—WATER FARCY—
 ABSCESSSES (VARIOUS)—ULCERS.

UNDER this head we propose to consider the diseases and injuries of the integument and the cellular membrane.

MANGE—ITCH.

Mange, the form in which, in hairy animals, the *itch* makes its appearance, is the most contagious of a loathsome class of diseases.

The irritation has been shown by microscopic observation to depend upon the presence of minute insects called *acari*. The mange insect of the horse is of a different species to that of the human itch-insect, yet it is abundantly proved that itch may be caught by man from a mangy horse, dog, or other hair-coated animal. Though mange is, in the vast majority of instances, the result of contagion, yet poor living, neglect of cleanliness, and a lowering of the vital system generally, will produce it spontaneously, and it will then spread ruinously, even to better-conditioned animals.

The most remarkable characters of mange are, the annoying itch it creates, and the bare, scabby places it occasions on the skin. A mangy horse will rub himself against any part of the stable or yard where he may happen to be. He will even rub himself against his companions, should he be at grass or strawyard with others; and by frequent and violent rubbing will irritate and excoriate the diseased places, and thus considerably aggravate the malady. Though no part of the skin can be said to be exempt from mange, the places it commonly occupies are the neck, shoulders, withers, sides, thighs, and head. On removing with a brush the incrustations, or rather the kind of scaly dust produced by the dried pustules, and examining it

attentively in the sun or any warm place, a person may distinguish, even with the naked eye, little organised, transparent, shining bodies moving about; these are *acari*—insects belonging to the same family as the *sarcoptæ* of human itch. There is almost always to be discovered in places within the substance of the skin more or less *larvæ* of these animalcules. In the horse the insect is large enough to be seen without the aid of a lens in its travels over different parts of the mangy animal's body.

Symptoms.—The symptoms of mange are seldom noticed till the disease is established. They are very simple: the animal is observed to rub himself uneasily, and then, on examination, the hair is found loose and coming off, and the multitude of minute pimples leave no doubt of the nature of the case. Mange being suspected, its existence may also be readily ascertained by inserting the fingers among the roots of the hairs of the mane, and slightly scratching the parts. The horse will extend his neck and head, and continue motionless so long as the hand remains upon its crest.

Treatment.—Though mange is principally treated by local remedies, yet constitutional ones—cleanliness, warmth, malt mash, carrots, beetroot, speared corn, etc.—will materially assist and expedite the cure. As in human itch, sulphur is most relied on. When ointment, liniment, or wash is to be applied, should the weather be fine, place the animal in the sunshine for an hour; if not, put it in a warm stable, clean the coat sedulously till the scurf is removed, and allow nothing to be used for other horses that has touched the animal—brushes, combs, cloths, or even halter or harness. Then rub in with the hand or a piece of flannel either of the following, missing no part from the nose to the end of the tail:

MANGE OINTMENT.

Sulphur vivum (yellow sulphur)	6 ounces.
Linseed oil (or olive oil, 12 oz.; and oil of tar, 4 oz.)	1 pound.
Oil of turpentine	2 ounces.
Mix.	

If the colour of the horse is desired to be preserved, add

some soot for a black or brown animal, or bole armenian where the colour is bay or chestnut. Yellow sulphur and antimony, in a dose of six drachms the two, may be mixed with the food.

ANOTHER OINTMENT.

Strong mercurial ointment	4 ounces.
Soft soap	2 pounds.
Mix.	

LINIMENT FOR MANGE.

Glycerine	12 ounces.
Creosote	2 ounces.
Oil of turpentine	4 ounces.
Oil of juniper	2 ounces.

Soak the coat thoroughly, and the third day after wash thoroughly off and dry the animal, letting him stand an hour in the sun if possible. Rub down, and apply the liniment once again, washing off as before. Or a lotion may be used as follows :

LOTION FOR MANGE.

Corrosive sublimate	1 drachm.
Spirits of wine	1 ounce.
Tobacco-water, 1 quart, made from 2 ounces of tobacco.	

Though mercurial preparations cure mange, they are not so certain in operation as sulphur. Percivall says Barbadoes tar and linseed oil, simmered a few minutes in an old kettle, surpasses all more compound remedies. Some powdered hellebore root, say half the quantity of the yellow sulphur, mixed with that mineral is an improvement on our first recipe.

A common *prurigo* or itchiness sometimes occurs in spring, which makes the horse rub himself violently and remove patches of his coat. It is merely heat of skin, and may be relieved by a wash of glycerine and rose water, or a liniment of creosote and oil, with a cooling drench of

Liquor arsenicalis	1 ounce.
Tincture of muriate of iron	2 ounces.
Water	1 quart.
In four doses.	

RINGWORM.

Ringworm, though not common among horses, does occasionally present itself.

Although we have little or nothing to apprehend from "tetter," it often turns out a very intractable disorder when we try to cure it, and especially when it has become inveterate through negligence or long standing. It is ascribed to a variety of causes, constitutional as well as local. It is very apt to make its appearance in the spring and autumnal seasons, among horses that have suffered from exposure and bad keep, and will attack many at the same time.

Treatment.—Unacquainted with the specific organic disturbance to which tetter owes its existence, our "remedies," as they are called, are empirical. We must attend to the general health and condition of the animal, and take care that his diseased skin is well washed with soap and water as often as required, without which the dressings cannot take proper effect. Should the bare places exhibit inflammatory action, we must foment, and (if practicable) poultice them, and bleed and purge the animal. Sulphur ointment, empyreumatic oils, corrosive sublimate in weak aqueous solution, etc., are recommended. At the Alfort Veterinary School good effects have been derived from the use of the liquor plumbi in combination with nitric acid.

Creosote and simple cerate, and an ointment of the nitrate of lead, with the liquor arsenicalis as a drink, may be tried; and a common wash of chloride of zinc, diluted with water, has been found useful.

SURFEIT.

The appearance of surfeit is a quantity of round, blunt, heat spots on the skin, which occasionally proceed to exudation and form small scabs. The horse has generally an unhealthy coat, or hidebound, or is in a plethoric state.

It is a consequence of excessive feeding. Prurigo may be looked upon as the simplest form of surfeit.

The *Treatment* must be such as tends to relieve plethora, and to remove any inflammatory disposition that may exist in the system; at the same time the eruption itself should be as much as possible encouraged. In cases of simple evanescent eruption, nothing more is required, in general, than the substitution of a mash for a corn diet—green meat, if it can be procured, for hay—chilled water, warm clothing and bandages, and additional walking exercise. Should the eruption evince a permanent character, or should it show a disposition to relapse, it may become requisite to bleed and purge moderately; and these evacuations may be followed up by cooling febrifuges—antimony and nitre—mingled in powder with the animal's mashes. The following is good:

Nitre	3 drachms.
Sulphur	4 drachms.
Black antimony	2 drachms.
Mix with bran and give in the corn.	

When the lumps on the skin are bursting and discharging, the time for evacuating remedies seems to have gone by. We may then content ourselves with a cooling regimen, and the exhibition of alteratives; and sponge the surface with warm water. Though, "should the skin require excitement," the same author recommends "frictions with camphorated spirits."

HIDEBOUND.

When a horse's hide or skin sticks to his ribs, as it were, and cannot be drawn out or moved as in the healthy state, he is said to be hidebound. It indicates great weakness and poverty, and sometimes a diseased state of the mesenteric vessels, and consumption. It is generally occasioned by ill-usage, and bad or insufficient food, and cannot be removed without proper feeding and good treatment. One of the great causes is turning the animal out in a strawyard.

The following powder may be given daily in the food, the effect of which will be, by stimulating the stomach and

bowels, not only to assist digestion, but also to affect the skin by sympathy:

Cantharides, finely powdered	.	5 grains.
Pimento	. . . . .	2 drachms.
Sulphate of iron	. . . . .	2 drachms.

If the horse refuse this powder in his food, it may be made into a ball with treacle, and given for a week or a fortnight. Or a tonic alterative drink may be given. (See *Tonics* in List.)

LICE.

The vicinity of a hen-roost is often the cause of this annoyance. These parasites cannot be destroyed by the same means as those of the horse, which die when anointed with oil or grease, and washed off. When lice occur with hidebound, they generally disappear with the disease.

LARVÆ IN THE SKIN.

These annoyances are another result of turning an animal out to grass, the fly whence the trouble is derived never entering the stable. The insect rejoices in the freedom of the field; and man, by turning out his horse, finds the creature a fitting spot for the deposit of its eggs. The warmth of the animal hatches the larvæ. No sooner is it endowed with life, than, with the instinct of its kind, it burrows into the skin. The integument of the horse, however thick it may appear, is soon pierced by the active little maggot, which, thus snugly housed, retains its lodging until the following spring. During the winter a small lump denotes its abiding-place; but as the second summer progresses, a tolerably large abscess is instituted. The interior of the abscess, of course, contains pus. Upon that secretion the insect lives and thrives.

Such swellings are acutely painful, and prove the sources of much annoyance. They mostly occur upon the back. The saddle cannot be laid on one of these tumours; and, as the spine supports much of the harness, the proprietor has the vexation of beholding his horse rendered useless; for suffering, should service be exacted, occasions the creature

to excite displeasure; besides, the pranks thus provoked by torture often continue after the cause has been removed.

Upon the summit of the abscess appears a black spot. It is at this spot the larva receives the air needed to support a dormant existence. This fact being known to certain people, the knowledge is employed to destroy the parasite. The swelling is first slightly greased, and then a drop of melted tallow is let fall upon the breathing place. By such means the insect is effectually suffocated, and assuredly dies.

Others employ a darning needle as the instrument of execution. The needle is thrust through the central spot into the swelling for three-eighths of an inch. The larva thereby is pierced, and the life certainly is sacrificed.

Neither method occasions at the time the slightest pain to the horse. In either case the maggot dies; but the business, unfortunately, is only rendered worse by killing the source of evil. The dead body putrefies. A foreign and corrupting substance beneath the skin may enlarge the abscess to many times its original dimensions. After all, the system has to cast forth the irritating matter; and for that purpose inflammation, with its attendant fever, must be perfected. Much suffering is thus occasioned, and the proprietor is, for several weeks, forced to forego the employment of a valuable servant.

The safest, the surest, and the quickest manner of eradicating these parasites is, with the point of a lancet slightly to enlarge the central opening, and then, with the finger and thumb applied on either side of the swelling to squeeze out the intruder. The abscess rapidly disappears; and it only requires a few dabbings with the solution of chloride of zinc, one grain to the ounce, to close the wound. However, the best manner to avoid such annoyances is, not to turn the horse out, and treat a domesticated as an untamed quadruped.

MALLENDERS AND SALLENDERS.

When a scurfy or scabby eruption at the posterior part of the bending of the knee appears, it is termed mallenders; and when a similar one appears at the bend of the hock, it is called sallenders. Neither of them lame or do much harm; but sometimes, when neglected, they degenerate

into a foul ichorous discharge, a little more troublesome, and always unsightly. Both of them are easily removed by washing with soap and water, and by applying the following:

Camphor	1 drachm.
Subacetate of lead (sugar of lead)	$\frac{1}{2}$ drachm.
Mercurial ointment	1 ounce.
Mix.	

Tonic and alterative drinks should be given. This is Mayhew's ointment for the disorder:

Animal glycerine	1 ounce.
Mercurial ointment	2 drachms.
Powdered camphor	2 drachms.
Spermaceti	1 ounce.
Mix and rub in gently.	

Crown scab and rat tails.—These are of the same nature as mallenders, and may be cured by the same means. They generally, however, leave a blemish, consisting in a loss of hair, and a thickening of the cuticle. Crown scab occurs on the coronet, and rat tails in lines on the back part of the leg, extending from the fetlock upwards.

WARBLES, SITFASTS, AND GALLS.

Warbles are enlarged bursæ inflamed by the pressure of the saddle. Open them with a sharp-pointed knife, thrust in, and cut outwards. Then, to prevent inflammation, take a piece of lunar caustic, and apply it freely till the sac is burned out. Wash and sponge with chloride of zinc and water, and keep a rag wet with the lotion over the wound.

Sitfasts are very annoying. They are a patch of horn, somewhat like a corn on the human foot. They are not simple corns, however, as they have an ulcerated margin. They are tedious and sometimes obstinate. The knife and lotion, as above, offer the best chance. It is more humane, too, than the slow process of rubbing in blistering ointment. Bran mashes and a tonic drink may be given.

Harness Galls.—Poultice till the swelling has subsided or suppuration come on. If the matter has not sufficient

vent, open the channel of discharge. Dress with digestive ointment, and finish with an astringent application [(C) or (E) in List)].

WARTS

are best removed by tying a ligature round them; or, with scarcely any pain, by applying every day, with a camel's-hair pencil, a small portion of strong acetic acid; or they may be cut off with a knife or scissors, and the root touched with any caustic body. There is sometimes seen a sprouting, luxurious species, whose roots are larger than their heads, so that a ligature is not easily passed around them; these are best removed by touching their surface daily with the following paste. The following application will seldom fail to remove such as cannot be conveniently got at by the knife or ligature, dressing with it once a day:

Sulphuric acid	:	:	} a sufficiency of each.
Powdered sulphur	:	:	

Make into a paste, and apply a little to the wart. Blaine recommends:

Muriate of ammonia	.	.	.	.	2 drachms.
Powdered savin	.	.	.	.	1 ounce.
Palm oil	.	.	.	.	2 ounces.

WATER FARCY.

Water Farcy is quite another disease from farcy (already considered), in causes, symptoms, or effects.

Water farcy is of two kinds: one the product of a feverish disposition; the other is dropsical, and of that kind which in man resembles the anasarca, where the water is not confined to the belly and limbs, but shows itself in several parts of the body, with soft swellings which yield to the pressure of the fingers, as is usual in all dropsical habits. This last kind usually proceeds from foul feeding, or from the latter-grass and fog that often comes up in great plenty with long-continued rains, and breeds a sluggish viscid blood.

Treatment.—However much practitioners may differ on the questions of the origin, specific nature, and organic seat of this disease, there exists little variation of opinion concerning the most efficient mode of treatment. Gorged with blood, distended—to bursting even—by internal effusion, hot, tense, and tender as the limb evidently is when first attacked, nobody can hesitate for a moment to draw blood; and this ought to be done to an amount that will sensibly impress the system. Abstract two gallons from a horse in condition; one even from a subject not so; and follow the bleeding up by the immediate administration of the following ball:

Take of Purging mass	.	.	.	9 drachms.
„ Calomel	.	.	.	1 drachm.
Mix and make into a ball.				

ABSCESS.

As connected with the skin, we here consider abscess generally. Its particular treatment will be found under *Poll Evil*, *Strangles*, and other diseases wherein it occurs.

By abscess, in its most extensive sense, we mean **any** collection of fluid which interposes between parts in a kind of sac. In its limited sense, the word represents a collection of pus formed by a quick process of suppuration, and contained within a closed sac. When a purulent abscess forms, the following process takes place: An injury, generally a bruise, is received; part of the vital body is crushed or dies, and nature is desirous to repair the loss, and to cast off the dead substance. The minute vessels of the part are stimulated to effuse coagulable lymph within the cellular tissue, the consequence of which is distension or swelling, that here, as elsewhere, produces tenderness and heat, and, when the hair allows us to detect it, a reddened blush. The effusion around the immediate part which is dead thickens, grows vascular, and ultimately forms a closed sac. Arrived at this state, the tumour may take on various changes by peculiar processes within it. The suppurative one is supposed to ensue all over the internal sides of the sac, where, by a change in the action of the inflamed vessels, pus begins to be secreted. It then presses against the adjacent

muscles, causing these structures to be absorbed ; and it is fortunate that, by an apparent conservative law of animal life, such absorption is most active towards the surface of the body, thus aiding the evacuation of its contents, which can be effected without prejudice to the constitution.

The Treatment of Abscess.—In the early stages of such tumours, endeavour to forward them through the application of warmth and moisture, both of which are gained by a poultice. A blister may likewise be applied to the surface, and a poultice over that, when it is very important to draw the abscess forward. Horse poultices, on account of their magnitude, are generally formed of bran, upon which boiling water is poured, and the whole well stirred together ; or a very good poultice may be formed of hay soaked in hot water, any excess of moisture being squeezed out afterwards. About a gallon of substance is sufficient for one application. Being assured that maturation is completed, the thickness of the integuments, and the fear of the extension of the suppurative process inwards, make it always prudent to form an artificial opening in the more dependent as well as prominent part of the tumour. This may be done by direct section. Incision is effected by the abscess knife ; but in every case the opening should be sufficient to give a ready exit to the matter which has formed, and that which may subsequently be secreted. In some situations, as where the natural outlet has appeared on a place we do not desire it should point in, or where the abscess does not point upon the precise spot we could have wished, it may be prudent to make an incision in the natural prominence, and insert a seton through the place we could desire the fulness should have occupied. It is, however, necessary to be careful in making the incision when it dips downwards, that it is made in the course of the muscular fibres, and not in the direction of considerable branches of nerves or blood vessels.

Nothing further need be done for the eradication of an abscess than the establishment of a free depending orifice. Putting the finger into the opening and stirring it round is unnecessary, to say the least of it. All injections are objectionable, to speak of them in the mildest terms. Should, however, the sac of an abscess display an indisposition to contract after its contents have been evacuated,

apply a blister over it, and when the effects have somewhat abated, support the pendent parts by means of bandages.

Serous Abscess.—As a termination of inflammation, and, in the form of Strangles and Poll-evil, purulent abscess is considered. There is a second kind called serous abscess.

The ordinary situations for these swellings are upon the outer side of the quarter or thigh, in front of the stifle, and upon the breast, the shoulder, and the arm. They are occasionally of considerable volume. They are usually egg-shaped, flattened upon the surface, and have a soft, elastic, fluctuating feel. When punctured, they emit, with considerable force, a limpid, straw-coloured, aqueous fluid, like the serum of the blood.

Treatment.—Percivall's practice is clear and decisive. He says it is time lost to set about attempts at dispersing or resolving these tumours. The most summary mode of getting rid of the swelling is to plunge a lancet into it and evacuate it. Were we, however, to do nothing beyond this, we should find in a day or two that the tumour had become as large as ever. Evacuate it a second time, and the fluid still will speedily recollect. To make a cure, we must either follow up the evacuation by throwing into the cavity with a syringe one of the following injections, or else pass a seton through the sides of it:

Take of White vitriol	1 scruple.
„ Distilled water	1 ounce.

Mix.

Take of Lunar caustic	5 grains.
„ Distilled water	1 ounce.

Mix.

After the injection, or even after the withdrawal of the seton, which should only be retained until a laudable pus is produced, a compress and roller (should they be applicable) will be found much to assist the granulation and cohesion of the sides of the cavity.

ULCERATION.

An ulcer is a sore arising from imperfect granulation, secreting an unhealthy, impure, thin, irritating (sanious)

pus ; these imperfect granulations cannot fulfil the purpose of building up muscle (flesh) or tissue while absorption goes on, and a loss of substance ensues. Granulation ceases to build up regularly ; absorption removes irregularly ; and hence comes an uneven surface, more or less a hole, with hard, irregular edges, called an ulcer. In most cases, ulcers are attended with great irritability of system, which must be attacked by opium or generous digestible food. The general treatment of ulcers is to cleanse by means of a poultice, then stimulate, and keep up the system by a nutritious diet.

Ulcers are often found of a greater extent internally than externally, when the fluid which is secreted by them absorbs in different directions, forming narrow pipes, the sides of which are scirrhus, from which issues a glairy discharge. These pipes are called sinuses by the surgeon. In general cases, the longer an ulcer has lasted, the more difficulty there will be to bring it back to a healthy state. The external means employed for this purpose are usually stimulating injections, or incision. Ulcers are apt to be treated by farriers erroneously, by plugging up the sinuses. When the caustic penetrates farther than was intended, sloughing away the diseased and the healthy parts, the true remedy is equally simple and effective ; namely, to slit them up, and then to lay within the divided pipe a piece of tow saturated with some caustic solution. By this means the scirrhus lining will be cast forth, and that which was a sinus will be converted into a simple wound.

FISTULÆ.

There are three fistulous disorders in the horse which more particularly demand notice, and to these we shall confine our attention: (1) *Fistula of the Parotid Duct* ; (2) *Poll-evil* ; (3) *Fistula of the Withers*.

FISTULA OF THE PAROTID DUCT.

The outward sign of this disease is an unnatural outlet for the saliva in some part of its passage. A recent wound of the duct itself shows little more than an opening wet with moisture, except when feeding, at which time the saliva will pour or spirt from the aperture like blood from an artery.

The edge of the opening becomes ulcerous, and soon changet to a true fistulous ulcer, the pipe itself, in old cases, becoming as hard as cartilage. The digestion, too, becomes deranged from the loss of that valuable secretion, the saliva, which is squirted out through the fistula instead of being conveyed, as when the duct is whole, into the mouth to be mixed with the food, and conveyed from thence to the stomach. The position and function of the parotid gland have been already described. The fluid expelled is semi-transparent, afterwards tinged with pus from the ulceration, and occasionally coloured with thin blood.

The *Causes* of fistula of the parotid duct are generally accidental injury, or abscesses resulting from strangles; hay seeds, and particles of hard food entering the opening of the duct during mastication have produced it. These, afterwards swelling, obstruct the egress of the saliva, which accumulates; the confined secretion produces agony, inflammation, and abscess, which nature relieves by bursting; the pent-up secretion pours forth, and fistula is established.

Treatment. — Mr. Gowing's treatment may be thus described: A firm, agglutinating liquid is formed by dissolving gun-cotton in sulphuric ether, which is called collodion. Upon applying this liquid to the surface of the body, the vital warmth occasions the ether rapidly to evaporate, leaving the cotton in an altered form, sticking firmly to the part.

Mr. Gowing first applied some mild caustic to the wound, till the orifice presented the reddened appearance he desired it should assume. He then places above the opening a bulky pledget, sufficiently large to thoroughly close the wound, and sufficiently solid to resist the solvent powers of the saliva. A piece of cork, cut to the required shape, answers the purpose admirably. Over this, to bind it to the part he wished it should close, he passed some cotton thread, the ends of which he fixed to the hair of either side by a liberal allowance of the liquid we before alluded to. This he repeated several times till the plug was held firmly to the place by the cross bands of cotton. He repaired this dressing from day to day as it was necessary, having the horse's head tied up, and supporting the animal entirely by fluids. After a few days had elapsed the horse was allowed to lie down; and a short time subsequently the bandage was removed, when the orifice was eventually stopped.

This is a far better, and a far more effectual plan than any of the old measures once fashionable, but now we trust, on account of their barbarity, discarded. Treated after the above method, should the first trial not succeed, a second can be made; and this plan may be repeated an indefinite number of times without inflicting suffering amounting to positive torture.

Should it be more convenient, a solution of gum-mastic in spirit of wine, or a solution of india-rubber in sulphuric ether, will answer the same purpose as the collodion.

We may add that the horse should be allowed no food that requires mastication, and his head should be fixed by pillar-reins during the process of cure; and make his bed of tan, not straw, lest he should eat it.

POLL-EVIL.

This loathsome and troublesome disease consists in a deep abscess, with sinuses or pipes, working outwardly to an ulcerous sore, preceded by swelling and inflammation in the poll, or nape, of the neck, just between the ears, towards the mane.

The causes of poll-evil mark it as discreditable to the stable where it occurs. Mechanical injury from blows, bruises, etc., are the ordinary origin. Farm horses and cart horses are most frequently the subjects of poll-evil. Their coarse, ill-made, stiff, and hard head-collars or bridles chafe their polls, and cause them to be continually rubbing the part. The halter or bridle, from constant friction, begets a mangy affection of the skin about the nape of the neck, from the itchy annoyance of which the animal endeavours to relieve himself by rubbing his poll against the manger, occasioning that part to inflame, swell, become excoriated, and generate among the roots of the hair foul ulcerations. Or it may happen that the roof or beams of the stable, or the threshold of the door may be so low that the horses are daily hitting their heads against it. Or, worst of all, the brute who drives the team may be fond of exercising the butt end of his cart-whip in perference to the lash. Hanging back in the halter (to which stalls with a great slope from the manger to the drain much dispose the animal), by impeding the circulation, produces numbness and itching. The horse rubs his head violently against

the travis, or division, of the stall, a bruise of the fleshy substances, between the hard woodwork and the bones at the base of the skull ensues, and a deep-seated abscess results. The first cause, therefore, of poll-evil is wilful, neglectful, or purely accidental external injury.

Tenderness on pressure on the poll, or nape, of the neck, and the peculiar stiff and crouching manner in which the animal carries his head, indicate poll-evil. The symptoms, of course, depend upon the extent of the disease, and the stage the inflammation and abscess have reached. You may find a solid tumour, or a matured abscess, or it may have advanced to the ulcerative stage, exposing cavities and sinuses horrible to behold.

Treatment.—The knife and caustic tents of chloride of lime are our great resources in poll-evil. In the early stage of abscess, whether deep or superficial, open the parts freely, and then we may hope to induce the healing process in due time. Should the abscess not be fully formed, we should use our best endeavours to ripen it; which will be best attained by a mild blister rubbed in as often as required till the fluctuation is felt either on one side or the other. The next object is to procure a speedy evacuation of the contents, and a depending orifice for its future passage, that no sinuses may form. This may be done by the introduction of a seton, first inserting the needle in the middle of the tumour, and passing it out at the most depending part. In case the tumour is a central one, and its limits extend equally over the neck, do exactly the same by the other side.

FISTULA OF THE WITHERS.

Continuous and undue pressure of the saddle, either by its misfit or the improper management of a careless groom or incautious rider, and this evil, repeated day by day and at frequent intervals, establishes an inflammatory tumour. This should be immediately laid open, and subsequently treated after the manner explained under the head of *Warbles*. When this is not done, the whole hardens, suppuration generally takes place within the part, and the strong fascia on the back prevents the pus escaping. The pus becomes virulent, being confined: it absorbs, thus creating numerous pipes, and a case of fistulous withers is

established. Should the attention be called to a case that has proceeded to a fistulous state, treat exactly in the same manner as with poll-evil.

CHAPTER XXV

THE HORSE IN SICKNESS AND DISEASE

LAMENESSES—DISEASES AND INJURIES OF THE FORE LEGS AND FEET.

THE SHOULDER—THE ARM AND ELBOW—THE KNEE—THE
LEG—THE PASTERNS—THE FETLOCKS—THE FEET.

THE causes of lameness in the horse are so various, and often so obscure, that we may almost say that a hasty and confident opinion on the nature and origin of lameness is a sign that the man consulted has little judgment or knowledge of the difficulty of the question before him. Rashness, self-conceit, and a desire to obtain an undue reputation for acumen, may be almost invariably assumed as regards these positive gentlemen, who deliver oracular opinions on matters which demand sound knowledge, careful investigation, and deliberate reflection even from the most experienced. Above all things we would warn the horse-owner against people who have "secrets" for curing lamenesses. They are generally ignorant and dishonest barbarians, with neither humanity nor principle, and we always look with extreme suspicion on those who recommend their advice or services to be called for. Shoeing as a cause of lameness is now hardly known, however convenient a stalking-horse the farrier's shortcomings may be to a drunken or careless groom. Where the smith is really in fault, the mischief is obvious enough; where the causes lie deeper, the skilful veterinarian or the well-read anatomist alone can trace them.

In the present chapter we propose to arrange the several disorders and injuries as follows: *The Shoulder—The Arm and Elbow—The Knee—The Leg—The Pasterns—The Fetlocks—The Feet.*

1.—The Shoulder.

SPRAIN OF THE SHOULDER—BLOWS—SHOULDER LAMENESS—
RHEUMATISM.

Sprain or Strain of the Shoulder.—When the farrier finds himself at a loss to point out the exact seat of lameness, he generally takes refuge in the convenient generality of "sprain of the shoulder." The occurrence is rare, but when it does occur is easily detected. The tenderness of the muscle itself, inside the shoulder, and its inflammation, together with the peculiar action of *dragging the toe along the ground*, then dropping the knee suddenly, are indications of sprain of the shoulder. Its causes are a side fall, or a wrench, by which the fore legs are suddenly stretched apart so widely as to sprain either the muscles or ligaments—probably both. In this case the animal cannot move down the slightest declivity without intense pain, from the weight being thrown upon the shoulders; and, in the attempt, swings round the leg in a peculiar manner, endeavouring so to accomplish the movement as never to call upon the shoulder muscles to elevate the scapula. If the foot be laid hold of, raised, and brought into a straight line, the seat of pain will be indicated by the suffering animal. Again, pressure on the serratus muscle will cause the horse to shrink. Of course, if lameness has its seat in the arm or foot, neither of these tests are even noticed by the patient. A deceptive appearance of shoulder sprain occurs when, viewing a lame horse from the front, we find the muscle of one shoulder wasted, imparting an appearance of swelling to the sound limb; this resulting from the lame limb having been saved from exertion by the suffering animal, and therefore diminished in volume. In this case the sound limb is condemned as the seat of lameness, and treated, or ill-treated, accordingly. Never, therefore, omit both the tests above mentioned.

White says: "There is one kind of shoulder lameness which is consequent on an injury of the great synovial cavity, or bursa mucosa, through which that great tendon passes which arises from a protuberance on the lower part of the shoulder-blade, and slides over the large grooved process at the head of the shoulder bone. This large grooved process is covered with a slippery cartilage, as in other

synovial cavities, to prevent any friction while the limb is in motion. I have seen shoulder lameness that appeared to depend upon a rheumatic affection of this part. The manner of the horse's going, when this part is the seat of lameness, is very remarkable. In endeavouring to trot, and sometimes even in walking, the fore leg suddenly gives way or bends, and it is only by a considerable effort that the horse can save himself from falling. I had a filly under my care for this lameness, which fell down several times in walking. The remedies I employed were, passing a seton over the point of the shoulder, and blistering all round it pretty freely. This, and confining her some weeks in a box, effected a cure."

The general *Treatment* of shoulder sprain should be to bleed freely from the plate vein, just opposite the elbow joint. Three to five quarts is not too great a quantity. Bathe frequently and copiously with a lotion consisting of half-a-pint of tincture of arnica in a gallon of water. Should the case be recent, and the symptoms not violent, bathe with cold water only; and in either case, when the inflammation subsides, change the cold water for hot.

In this manner keep the shoulder wet for a week or longer, when, every sign of active disease having departed, a blister may be applied. With regard to the manner of applying the blisters in these cases, the late Mr. Blaine speaks very confidently; he says: "I would recommend the following practice, which I have long pursued in these cases with invariable success. As soon as the more active inflammatory symptoms are abated, I proceed to raise an artificial inflammation by the free use of stimulants, generally of the liquid blister, in the following manner: Mix six ounces of common oil with two or three ounces of liquid blister, and with this rub the whole affected part twice a day until the swelling and inflammation it will bring on prevent the use of more. In two or three days these will subside, when it should be repeated until the same effects again prevent the application. In this way keep up a mild inflammation for a week or ten days, according to the original violence of the affection; in general cases the subsiding of the second swelling will leave the horse sound. This will be found a much more efficacious mode of practice than the common blister; but it must be more particularly remembered, that I know of

no affection so liable to return as this; consequently, although the horse may appear sound, it will be very dangerous to put him to immediate work."

SHOULDER LAMENESS—RHEUMATISM.

To this head we have preferred to refer Rheumatism, a disease which many writers have denied as existent in the horse. Its presence, however, in the muscles of the shoulder, and occasionally of the loins, is too often recognisable not to place its existence beyond doubt, if not beyond controversy.

Of acute rheumatism, well-marked cases are occasionally encountered, which are traceable to the effects of cold or moisture. The leading characters are alike in all, the attack being ushered in by universal stiffness, but more particularly of the fore extremities. Sometimes the case is attended with considerable tumefaction in front of the breast.

Rheumatism is remarkable for "flying about." Sometimes it attacks one or two joints, then another member, shifting from the shoulder to the knees and hocks, and back to the shoulder—these being its favourite points of attack in the horse.

The *Treatment* consists in first decreasing the food to so much only as will support life, and diminish fat. Then give the following ball night and morning until the bowels are freely opened, when it is to be withheld till purging has ceased, and then recommenced :

Powdered colchicum	.	.	.	2 drachms.
Calomel	.	.	.	1 scruple.
Opium	.	.	.	1 drachm.
Aloes	.	.	.	1 drachm.
Powdered capsicums	.	.	.	$\frac{1}{2}$ drachm.

In the meantime the swollen parts may be freely fomented with very hot water, and afterwards well rubbed with soap liniment, to every pint of which a quarter of a pint of liquor ammoniæ has been added.

Should the above ball not succeed, try the following drink, which, in some cases, is even more effective :

Iodide of potassium	. . . . .	1 drachm.
Sulphuric ether	. . . . .	1 ounce.
Cream of tartar	. . . . .	4 drachms.
Give night and morning in a pint of gruel.		

Chronic Rheumatism may be the sequel of the acute. In some cases it appears as the immediate consequence of exposure to cutting winds, humid atmosphere, etc., and is indicated by stiffness and tenderness of the parts it attacks. When the extremities suffer, it is not unusual to observe some tumefaction, but always great disinclination to move. It occasionally visits the loins, but is most common in the fore quarters. Sometimes one extremity and occasionally both are affected, when sudden metastasis will often remove it to the other parts; these cases were well characterised by the old term of "flying lamenesses."

The *Treatment* of chronic rheumatism does not materially differ from that recommended to be followed in cases of the acute description, excepting that strychnia, in doses of a grain, gradually increased to three grains, has occasionally been attended with benefit.

II.—The Arm and Elbow.

FRACTURES—PUNCTURES—CAPPED ELBOW.

The *arm* extends from the *elbow* to the *knee*, and consists of two bones: the front long bone, the *radius*; and the short hinder bone, the *ulna*.

The elbow joint is sometimes punctured, either accidentally or through the brutality of the groom or carter. The swelling is often rapid and extensive, and fatal inflammation may ensue. Rest and the closing of the wound are the most important considerations.

The elbow is sometimes fractured. If the animal be placed in the hands of a skilful veterinarian, although the chances of cure are certainly against the horse, yet the owner need not despair. Absolute and long-continued rest, and that produced by means of slinging will be indispensable.

Capped Elbow, or *capulet*, is in its treatment similar to *capped hock*. These enlargements about the elbow are either the consequence of a violent blow, or from the calkins

of the shoes injuring this part when the horse sleeps with his legs doubled under him. If a seton be passed through the tumour it will sometimes rapidly diminish, and even disappear; but if it be of considerable magnitude, the skin should be slit open along the middle of the swelling, and the tumour dissected out.

III.—The Knee.

BROKEN KNEES—OPEN JOINTS.

This important and complicated joint is the seat of the most frequent and the most deteriorating of accidents to which this powerful animal is liable, in most instances from the incautiousness, the severity, or the incompetency of the driver or rider, or the requirements of ostentation and fashion in severe bearing reins, monstrous blinkers, and the like, rendering the horse comparatively helpless and blind, and punishing him for every false step, hesitation, and blunder.

We will suppose the horse has fallen, no matter how; the question is the treatment of the injury.

Treatment.—If called in while the wound is recent, the first thing is to sponge the knee clean from any grit, dirt, or extraneous substance; and even in this simple operation there is much difference in the right and wrong way of using the sponge. Slopping, smearing, and wiping should be eschewed; the immediate wound not touched in ordinary cases, but the sponge saturated with water squeezed dry *above* the laceration. The sponge will thus not become charged with dirt, and do the very mischief it is intended to relieve, nor will the water in the pail be fouled with grit (most important trifles are these), but the foreign matters clean washed away, the animal saved much pain, and the parts cleared for surgical examination. Let the horse get easy and calm after the washing, take him to his stall, give him a feed of corn, and water him.

Place the palm of the hand over the joint, and ascertain if there be much heat or swelling. Should no synovia appear upon the surface, it is prudent to avoid probing; it can “merely gratify curiosity,” says Blaine, “and a surgeon has no business with any such meddling impulse; the welfare of his patient should be his single thought, and

experience should tell him that the dimensions, depth, and magnitude of the wound are not at first to be ascertained. Such knowledge is not to be acquired till the slough has taken place." In this we agree; we have often seen the probe recklessly used—we believe to the aggravation and extension of the injury. When the joint is ascertained to be open, the injury must no longer be treated as a common wound. Our prognosis in such case will depend on the extent of the wound, particularly that in the capsular ligament, and on the circumstance as to whether inflammation has been set up in the cavity of the joint.

Our object must now be to close the joint as quickly as possible, and thus to prevent the escape of synovia. Unless we succeed in doing this, the inflammation of the knee will greatly increase, and the discharge of synovia become augmented in quantity, partly coagulating as it escapes from the knee, and hanging in large flakes from the wound; the animal, from the pain experienced, keeps the knee in a bent position, or paws with the foot continually. A vast deal of fever is excited in the system, which in some cases wears out the animal, and produces death. In other cases bony substance is thrown out round the joint, which at length closes the wound, but destroys the motion of the joint, and renders the animal useless.

It is, of course, important that the animal should be kept perfectly quiet, and the leg as straight as possible. If the horse can be slung conveniently, it will vastly facilitate the cure; for he must not lie down, lest he opens the wound. Mr. Turner's method is excellent in severe cases of open joint. The wound being cleansed, he prepares a paste of wheaten flour and table beer, mixed with a little bole armenian, which he spreads thickly above and below and round the knee. A pledget of tow is then wound round the joint and covered with some stout brown paper, and over all a cotton stocking. Outside the stocking is another layer of the paste, and a calico roller bandage, six yards long, is passed outside, all wound round with a gentle and continuous pressure; then another bandage of the same length the contrary way. The horse, having been dressed, is then bled, and a laxative is administered; the dressing is not removed until the joint is closed. It is understood that the horse is slung. If the leg swells from pressure of the bandages, he makes small cuts in each layer on each side the knee, but never in

front. In six or seven days, should there be a great accumulation of fluid within the bandages, an incision will afford it a way out, and another dressing of the paste, with a similar bandage, applied. The horse is to be kept suspended a week after the joint is closed, when the paste is removed, the knee washed, and the usual wound dressing applied. If there is still swelling above the knee, bathe with cooling evaporating lotion, but don't allow it to wet the dressings. A very superior splint, or knee-cap, may be now made by moulding gutta-percha, softened in hot water, to the shape of the knee.

With respect to concealing the after blemish, no power of earth can make the hair grow on a scar. It is not skin, and it cannot be covered with the appendage only to be seen upon true skin. But the cicatrix will with time become less. Often the wound, which on first healing appears rather large, in the course of three months will be all but imperceptible. Any application of blisters, be they mild or strong, can but increase the blemish it is their intention to remove. Let the scar alone. If you have thrown down a horse, no veterinary surgeon can be sure he shall afterwards stand upon perfect limbs. You must, therefore, take the consequences without complaint, and be grateful that you have, in the effects of time, some hope left when science has abandoned you.

Broken knees without Opening of the Synovial Cavity.—Occasionally broken knees prove to be mere skin injury, with slight contusion. Undue and too early exercise may force these into permanent thickening of the part, with injury to the free motion of the joint, whereas an extra rest and fomentation would complete a cure. When, therefore, a cut has taken place without injury to the cavity of the joint, the wound having been washed, bring the edges of the integument as closely together as possible by strips of adhesive plaster, as already directed; or, if the wound be extensive, it would be well to sling the horse. A cure by the first intention, or adhesive process, can only be hoped for in this way. If heat and tumefaction come on, use the lotion composed of arnica and water, two ounces of the tincture to a quart; and, after applying the arnica and water night and day for forty-eight hours, if the skin be broken, exchange the lotion for one composed of chloride of zinc and water; in this way a cure may often be

established, without injury to motion or blemish to the animal.

STRAIN OF THE KNEE-JOINT.

The knee-joint is seldom strained, so well is it secured by ligaments. It, however, occurs to young horses and colts in training, the seat of injury being the side of the knee, by slipping outward on the turf. Bleeding from the arm, warm fomentations followed by cold lotions, and a little iodine ointment when the inflammation has gone, are advisable.

IV.—The Leg.

SPLINTS—INJURIES—SPRAIN OF THE FLEXOR TENDON— SPEEDY-CUT.

This we consider as the part between the knee and the fetlock, consisting of the cannon-bone in front, and the two splint-bones behind, and is the seat of that common calamity of the horse:

Splints.—These are exostoses or bony tumours, formed by inflammation of the periosteum, and are found in three positions: on the inner side of the leg, close under the knee-joint; half way down on the inside; and sometimes on the front of the cannon-bone; in which last position they would more properly be called “nodes.” Splints are formed by the animal being worked too soon or too severely. Inflammation follows, and a bony, instead of a ligamentous deposit, takes place. A bony union, too, is set up between the two smaller bones and the cannon-bone; and hence the ease of motion is impaired. In the young and vigorous horse, however, other elastic principles are called into action, and the ease of action is not strikingly deteriorated; though at some distant period the mischief will crop out in stiff joint, or splints, in an aggravated form. The disposition to bony deposit, moreover, seems a spreading complaint, and is not confined to the space between the larger and smaller bones of the leg. A tumour, at first callous, afterwards bony, is formed with a part of its base resting on the line between these bones. This is a simple splint, and is invariably found outside the small bone and inside the fore leg, and outside the hinder one.

When a splint is not situated immediately under a tendon, or contiguous to ligamentary matter, it occasions no lameness. The veterinary practitioner should, therefore, in his consideration of the consequences in these cases, be guided in a great measure by the situation of the splint. If placed in front, it is productive of much less injury than when placed behind; for, as already pointed out, in this latter case the swellings may press on the ligaments, or interfere with the flexor tendons. For the same reason also, a splint placed at the lower end of the cannon is still more prejudicial than when situated higher up the leg. It is not uncommon to attribute that lameness to a splint which is dependent on other causes. A fully developed splint never lames, unless it interferes with a tendon or ligament. A splint, in the course of formation, however, may produce the most acute lameness, and often does so in young horses. A splint, also, by its situation, may excite inflammation in the ligaments and tendons themselves. As a splint is neither more nor less than a conversion of fibro-cartilage into bone, once formed, it can never be entirely removed; nevertheless, from the absorption common in later periods of life, the splints often diminish in bulk, or, as farriers call it, "wear away."

Treatment.—As we have just said, "a splint once is a splint always." Periosteotomy, or division of the skin which covers the bone, is the modern treatment for splints. It may be thus described: The horse is cast, and the leg straightened and properly secured. A small opening is then made just below the splint, sufficient to introduce a long, narrow, convex, probe-pointed knife, the edge of which is on the convex side. This knife is passed under the skin, and by drawing it backwards and forwards the periosteum is completely divided. A small opening is then made through the skin above the splint, and a narrow seton passed from one orifice to the other, after which a bandage is placed on the leg and the horse released. The seton is moved daily and dressed with digestive ointment, and at the end of a week removed and the wound allowed to heal. Our own dictum on splints which do not involve lameness, is to let them alone; or, if the horse goes slightly stiff, to apply a little tincture of cantharides, which may be repeated if benefit is derived from it.

In the olden time, dreadful measures were adopted with

splints, most of which left matters worse than before; of these we may speak when we come to spavin and ringbone. Among these were "thumping with a hammer, rubbing the swelling with a stick, piercing it with a gimlet or hot iron, and pressure by means of sheet lead, blistering, 'sweating' with acrid 'oils,' " etc., etc.

We have mentioned nodes in conjunction with splints. Of these Mr. Spooner says: "Bony tumours form on various parts of the cannon-bone; but, though sometimes large and offensive to the eye, they rarely produce lameness. They are more frequent with hunters than other horses, from blows in leaping. Iodine ointment is the best treatment. They also occur by the side of the sesamoid bones. When near the suspensory ligament they often cause severe lameness. Should they arise from strains of the ligaments they are more obstinate, and blistering, or even firing becomes necessary. In the latter case, persevere with the iodine ointment."

STRAIN OF THE FLEXOR TENDONS, OR "CLAP" OF THE BACK SINEWS.

This serious injury is of frequent occurrence, owing to the violent exertions to which the horse is too often urged.

There are, of course, degrees of this injury, and the terms, a strain of the flexor tendon, a sprain of the back sinews, a "clap" of the back sinews, a bad breakdown, may be taken as mere progressive expressions of the degree of mischief inflicted by one and the same kind of accident. In the case of "breakdown," however, it is a rupture of the suspensory ligament, as will be noted hereafter.

When the strain is slight, we may not discover the injury for some hours, when the animal, without being positively lame, will go in an unusual manner, as if slightly cramped or stiff. Pass the hand gently down the affected limb, and a small swelling will be felt, and tenderness on pressure be shown. Do not listen to any fellow who tells you: "Oh, he will work sound!" As Mayhew shrewdly says: "The many horses seen in the London cab ranks with fore legs permanently contracted bear witness to the result of such very knowing treatment." To which we may add the thousands of cases where complicated and permanent disease destroys the wretched animal from first neglect.

Where there is strain, bind a linen roller round the leg tightly, and wet it diligently with cold water day and night; examine the limb every morning; give four drachms of aloes, and a very small suggestion of nitre to cool the system. Pressure may be gently and conveniently applied by a broad vulcanised india-rubber band, and a wetted piece of spongio-piline. Of old, the farrier was ready with his firing-iron, even in cases of sprain; the veterinary surgeon has, in the interest of humanity, driven him out.

When the sprain is more severe, bleed copiously from the arm; put the horse where he may be quiet, and have a high-heeled shoe placed on the foot of the affected leg. Cold applications, in the very early stages, particularly when the swelling is considerable, will tend to unload the vessels; and the same indications will be followed by immersing the whole limb in spring water. In two or three days change this plan for fomentations or embrocations. Any treatment more stimulating than this in the early stages tends to increase the deposit of lymph, and to organise it into a permanent tumour. But when the active stage of the inflammation has subsided, then mildly stimulating applications are proper; and they should be accompanied here with due friction and bandaging. The recovery from a severe case is usually very slow; the parts being ligamentous, do not readily reinstate themselves. The after-treatment must, therefore, fully accord with this view, which is that of giving sufficient time; and in most cases it ought to be some weeks after the horse may seem sound before he is put to full work. It is better, in the most favourable cases, to give a few weeks' rest, using, as already recommended, a vulcanised india-rubber bandage and spongio-piline saturated with water. A lotion of muriate of ammonia, one ounce, pyroligneous acid and spirits of wine, two ounces each, camphorated spirit, two drachms, and cold water, one quart, may be applied. Where the induration remains obstinate, repeated blisters, applied as recommended by Mr. Blaine in shoulder lameness, are the best means of reducing the tumours.

SPEEDY-CUT—OVERREACH.

The inside of the leg, immediately below the knee, and up to the head of the inner splint bone, is liable to the

injury called "speedy-cut." A horse lifting his legs high in a fast trot strikes this part with the hoof or edge of the shoe. Occasionally bony enlargement is the result, preceded by great heat and tenderness; and sometimes the pain from the blow is so great that the horse drops as suddenly as if shot. Care is necessary that with such horses no part of the shoe projects beyond the foot. The term *overreach* is also applied to a blow inflicted on some part of the fore leg by the hind foot; frequently it strikes the flexor tendon, and produces inflammation and tumour. We shall have something more to say of this when we come to the pasterns, to which we shall also defer the subject of "break-down."

V.—The Pasterns and Fetlocks.

BREAKING DOWN (RUPTURE OF SUSPENSORY LIGAMENT)—
CUTTING — RINGBONE—GROGGINESS—SPRAIN OF THE
COFFIN-JOINT.

BREAKING DOWN.

This accident, as already observed, is not strain of the back sinews, though that is bad enough as a disablement. The distinction should be made, for the sake of the accurate local application of remedial measures, and the correct observation of the progress of amendment. "Break-down," then, is a rupture of the suspensory ligament of the leg, or of those passing from the sesamoid bones to the pasterns. The treatment is the patten-shoe, as already mentioned under sprains—or, more commonly, a pistol-shot. With valuable race-horses, where *work* is not demanded, break-down have been followed by a stud-life, and nature has partly repaired the rupture, the intervening space of the severed ligament filling up with granulations.

Sprain of the fetlock-joint, arising from injury to the ligamentous and tendinous connection of these parts, has sometimes been mistaken for a common swelling, and the horse exercised to "take down the enlargement." Hence incurable deposits of coagulable lymph, forming stiff joint. The treatment should be the same as in other cases of sprain.

CUTTING.

We have already mentioned "speedy-cut" as a blow inflicted on the inside and lower part of the knee-joint, when the animal is urged to a very fast pace. Some carriage horses (the bearing rein must with these be dispensed with) strike the fetlock of the fore foot, and produce lameness, often without external wound; when fatigued or weak, the lameness is increased. Mr. Morecroft advises the raising of the outer side of the shoe so as to make it much higher than the inside. He says: "When a horse is at rest, he supports his weight equally on both feet; but having the inner heel and quarter raised when one foot is elevated, he must be supported obliquely on the other, and hence have a tendency to fall outwards; to prevent which, he brings the moving foot nearer to the supporting one, by which he strikes it. But by raising the outer instead of the inner branch of the shoe, we necessarily give it a disposition to lean inwards, which will induce the horse to throw or incline the moving foot farther from the supporting foot."

Mr. Spooner says on this point: "The best boot for cutting the leg is made with leather fitted to the leg and laced, the leather being double at the part struck by the other foot."

In some instances it is found that a boot buckled round the hoof that cuts, and softly stuffed, prevents injury from the blow, when other methods fail.

For cutting the fetlock, a piece of cloth tied round above the joint and doubled down over it answers the purpose."

RINGBONE.

This is a formation of bone surrounding the whole or a part of the circle of the coronet, and involving the joinings of the large and small pastern bones. From the great mobility of the pastern joints, and the shocks to which, despite their admirable contrivance, the ligaments are exposed when man overtasks the animal machinery, inflammation is induced, followed by the deposition of bony matter. Sometimes ringbone begins as high up as the superior articulation of the larger pastern bone; oftener about the joint formed by the two pastern bones; and

sometimes it involves only the lower pastern bone. The lateral or side ligaments are those that are oftenest or soonest affected; ringbone is then discovered, in its earliest state, by a rounded, hard projection on each side immediately above the coronet. The hind legs are not so subject to ringbone as the fore legs.

Ringbone is always accompanied by lameness at the commencement; but the extent of the after lameness depends on the degree in which bony tumour interferes with the action of the joint. In some cases it goes off altogether, particularly in the hind feet, where the concussion is not so great, and the inflammation is not generally so intense. In the fore feet, which support more of the weight of the body, and are liable to severer injury, the bony deposit is usually greater, and commonly involves one or both of the pastern joints. Lameness, and of an incurable nature, is the result if sidebones also exist, or the ring should extend under the cartilages; and it not unfrequently happens that the coffin-joint, being surrounded by unyielding bone, is entirely lost.

Treatment.—Local bleeding (from the toe), and evaporating lotions should be first employed; the inflammation being removed, setons should be inserted, or the part should be stimulated. All, however, will often fail, for the incessant action of the parts, and the pressure on them, render it very difficult to arrest the progress of the inflammation. In a confirmed case of ringbone, especially when the joint is lost, it would be the height of cruelty to subject the poor animal to the useless torture of the iron; and when sidebones and ringbones exist together, neurotomy is the only means to afford relief.

GROGGINESS—KNUCKLING.

This is a frequent tremulous motion of the fore leg, with a bowing of the knee, and some degree of knuckling of the fetlock; while upon the slightest tap behind the knee, the joint yields. There is an evident loss of power and energy in the limb; and though, in some measure, a natural defect, it is often a proof that the horse has been hardly worked, and it is probable that he can endure little more exertion.

The various structures which compose the limb have been overtaxed; they have become weak, their debility

preventing the animal from giving to the leg that fixed position which the member otherwise would assume. There is little remedy for it but stipulation, or the constant application of cool lotion with comparative rest, while the horse enjoys the salutary and bracing, and not sufficiently appreciated, influence of cold on weakness of the legs and feet.

SPRAIN OF THE COFFIN-JOINT.

The lameness is sudden, and the heat and tenderness just about the coronet. Bleed at the toe, physic, and foment; blister if obstinate. This accident is often confounded with shoulder lameness, and consequently wrongly treated. It is then the precursor and cause of ringbone.

VI.—The Feet.

LAMINITIS — FEVER IN THE FEET — ACUTE FOUNDER —
CHRONIC FOUNDER — PUMICED FEET — SAND-CRACK,
SEEDY-TOE — FALSE QUARTER — QUITTOR — TREAD —
PUNCTURED SOLE—NAVICULAR-JOINT DISEASE—CORN
—THRUSH—CANKER.

The sensible laminæ, or fleshy plates on the front and sides of the coffin-bone, are full of blood-vessels, and therefore, like other highly vascular parts, liable to inflammatory action.

When it is recollected what the laminæ, which are interposed between the hoof and the coffin-bone, have chiefly to sustain, the violent concussion to which the feet are exposed when in rapid action, it will not appear surprising that intense inflammation of these parts sometimes ensues. Besides this, there is no structure in the body of the horse so exposed to other causes of inflammation as the foot. After the animal has been ridden far and fast, while he is reeking hot, he is occasionally plunged up to his belly in pond or river. Almost every groom immediately washes the feet of his horse, while very few of them take the pains carefully to dry the dripping members. What is so likely to follow as inflammation? A horse may have been travelling many a mile up to his coronets in snow, and when he arrives at his journey's end, instead of having the warmth gradually restored to his feet by half-an-hour's good hand-

rubbing, he is put up to his knees in straw, or his legs are immersed in warm water. Is it not reasonable to expect that fever in the feet will follow this sudden change of temperature? In other cases there may be a metastasis, or change, of the place of inflammation. The animal is recovering from inflammation of the lungs, and suddenly the feet are attacked, and that without any fault of the surgeon or the groom.

Inflammation of the laminae can scarcely be mistaken. The horse is continually shifting his posture, yet without violent action. The feet are constantly moving; but they are moved as gently as possible. When the hand is passed down to them, the heat of the feet is evident enough. Generally, however, the horse, tired of shifting his place, and yet retaining the pain, lies down, and can with difficulty be induced to rise again. All the characteristics of general inflammation are exhibited. The pulse is hard and fast; the breathing sharp and quick; the skin harsh; the mouth hot; and the ears cold. But there are also signs which indicate the seat of the disease; for, besides the hoofs being unnaturally hot, the arteries of the legs throb, while the horse often points to his feet as the seat of pain by looking at them, and resting his muzzle upon them.

The *Treatment of inflammation of the feet* must be prompt.

Other inflammations may possibly, to a certain degree, brook delay; but here not a moment is to be lost. The inflammation must, if possible, be made to terminate in "resolution"; for, if the next process, and in some inflammations a salutary one, commences—if pus is thrown out within the foot—the hoof will inevitably come off.

Without a moment's delay the horse must be bled, taking blood from the toe; but it is not always safe to wound a part during the existence of acute inflammation within it. The jugular may in that case be opened, and the stream allowed to flow till the pulse falters. If in five or six hours the pulse regains its inflammatory character, the coronet may be punctured in several places. A third bleeding, but of a local character, may be justifiable; yet it should be remembered that such excessive depletion retards the recovery, although it may check the primary disease.

A full dose of physic should be administered; and

injections should be thrown up to quicken its action. Sedatives and febrifuges combined should also be freely given, not only to allay the general fever, but also to subdue the vascular excitement, as well as to deaden the pain. The following ball should be repeated every second hour until the pulse intermits :

Digitalis	1 drachm.
Opium	2 drachms.
Calomel	$\frac{1}{2}$ drachm.
Colchicum, in powder	1 drachm.
Nitre	3 drachms.
Emetic tartar	$\frac{1}{2}$ drachm.
Make in a ball with treacle.	

We would desire to do something to the feet, but often the horse obstinately stands and will not suffer them to be raised or touched. If the shoes can be removed, they ought to be taken off, and the soles, should it be possible, pared. The feet then should be put into poultices, or constantly fomented. If, however, the horse resists, these things had better not be attempted. Moisture is necessary to soften the horn of the hoof so as to allow the inflamed parts to expand ; and the low temperature is required to reduce the inflammation. Ice is of great service if it can be constantly applied ; but if only for an hour or two, with an intermission during the night, it does more harm than good. It should only be applied when the inflammation is high ; but when that is the case, and the foot is very hot, a lump or two of ice constantly kept in the poultice will be of great service. Wet cloths can be placed upon the legs ; and these can be kept constantly moist with the coldest water. The straw should be removed, and its place supplied with damp tan, or even sawdust, which may be moistened, and will be less heating to the animal's feet. The body should be clothed — a sheep-skin placed upon the loins. Even if the horse will eat, only a few spare bran mashes should be allowed ; but water ought to be constantly before him.

When the first symptoms abate, the coronets and legs may be blistered ; but this ought not to be done until the acute stage has passed. A seton, however, may at the commencement be placed in the chest ; and often, when

thrust through the diseased frog, seems to be attended with benefit.

The practitioner will carefully look out for the worst symptoms, as well as those of amendment. When separation begins to take place at the coronet between the hoof and the hair, it indicates that the process of suppuration is established by exudation; and, that process once thoroughly set up, it will go on in defiance of all that can be done to stay it. It will be useless further to punish the horse; but some relief may be obtained by surrounding the feet with poultices. Another hoof will in process of time be produced; but it will be smaller and weaker than the first, and liable to inflammation.

It is seldom that intense inflammation of any kind terminates without effecting some change of structure. Disunion to a very considerable extent between the horny and fleshy laminæ is a frequent consequence; and the result of that is, that the coffin-bone is no longer retained in its place, but sinks backwards and downwards. A malformation which no surgery can remove is the result. The sharp edge of the coffin-bone rests upon the sole, and often pierces through it. This is an incurable state of the foot. The attempt at forcing up again the coffin-bone betrays ignorance of anatomy, and of the progress of disease. When the coffin-bone begins to recede from the crust, the hoof follows it to a certain degree; but its structure limits this, and another process commences in order to fill up the vacuum. An unnatural quantity of plastic matter is secreted by the sensitive laminæ; the crust thickens and inclines inward as the coffin-bone retires; it has sometimes been observed more than two inches in thickness. Nature is, as it were, attempting still to maintain the union between the parts.

What power applied to the sole can force back the coffin-bone, pressed upon and kept down by this thickness of horn? or what power can be applied to the external sole without bruising the internal and sensitive one? Lameness, which no art can relieve, ensues; it is lasting and incurable. The horse should be destroyed; but many animals in this state are forced to do slow work, and, by the whip, compelled to move in agony.

CHRONIC FOUNDER.

Lameness often appears in a chronic form, but is always distinguished, no matter in what state it may exist, by the peculiar manner of going which it induces. The horse with inflamed laminae endeavours to cast all his weight upon the heels, in order to spare, as much as possible, the wall with which the diseased part is connected. The gait is peculiar; and the toes pointing upwards denote the condition of the animal.

Chronic laminitis may be the consequence of the acute disorder; more frequently it comes on gradually, and is at all times difficult to remove. Setons through the frogs, with repeated purgatives, and a course of alterative medicine, have answered best, although too often this form of the disease resists every treatment.

Laminitis may appear in one or all of the legs.

Most frequently the two fore feet are attacked; and the animal then brings his hind legs under him, as much as possible, with the intention of taking the weight from the affected members. When only one foot is attacked, the other is always ultimately the seat of poignant lameness, and what once was the healthy limb becomes the most diseased, because the animal, to spare the lame leg, continually casts his whole weight upon the sound one. The horse with laminitis in one leg should be destroyed. With all four limbs attacked he may recover; but when laminitis appears in one only, he has no chance of being relieved, and it is mercy to shorten his sufferings.

PUMICED FEET.

When, from inflammation, the sensible horny little plates, which were separated by the heat and swelling, do not unite again, their elasticity is lost, and the coffin-bone, no longer supported, comes down and renders the foot convex, or rounded outwards. This is a "pumiced foot." The crust of the hoof also falls in at the front, leaving a hollow of a remarkable character in the middle and front of the fore foot.

The *Treatment* of this disorder can only be palliative, and no skill is competent to effect a reunion between the separated fleshy and horny leaves, or to restore to them the

strength and elasticity of which they have been deprived, or to take up that hard, horny substance which very speedily fills the space between the crust and the receding coffin-bone. Some efforts have been made to palliate the disease, but they have been only to a very slight extent successful. If horses, on the first appearance of "flat foot," were turned out in a dry place, or put into a box for two or three months, sufficient stress would not be thrown on the leaves to increase the evil, and time might be given for the growth of horn enough in the sole to support the coffin-bone; yet we much doubt whether these horses would ever be useful even for ordinary purposes. The slowest work required of them would drive the coffin-bone on the sole, and gradually the projection would reappear; for no power and no length of time can again unite the separated leaves of the coffin-bone and the hoof. All that can be done in the way of palliation is by shoeing. Nothing must press on the projecting and pumiced part. If the projection be not great, a thick bar shoe is the best thing that can be applied; but should the sole have much descended, a shoe with a very wide web, bevelled off so as not to press on the part, may be used. These means of relief, however, are only temporary; the disease will proceed, and, at no great distance of time, the horse will be useless.

SAND-CRACK—SEEDY-TOE.

Sand-crack is a well-named disorder. It is solution of continuity of the horny fibres of the hoof in the direction of their growth, that is, from above downwards. It is consequent upon a dry, brittle state of the hoof, and attacked the horses of the British cavalry and artillery when in Egypt to a great extent. These fissures are much more frequent upon the fore than the hind feet; but they are sometimes seen on cart horses in front of the hinder foot, from the violent strain put upon this part in drawing heavy loads. They are mostly on the inner side of the fore foot, where the weakness of the quarters, when accompanied by brittleness, renders it liable to separation. As a sand-crack generally extends to the sensitive parts, it requires that the horse should be taken from work for a time. If the sand-crack shows no sign of active suppuration, although it has completely penetrated the horn, and

a little blood or serous moisture shows itself at the edge, but only under the effects of motion, proceed to pare away the horn around it; and next, by means of a camel's-hair pencil, introduce within the edges a small quantity of the solution of chloride of zinc, as recommended for thrush.

Bandage the hoof up moderately tight for two days, then again examine the fissure; when, if the oozing be altogether stopped, and no inflammation appear, proceed to draw lines of a moderate depth with a sharp firing-iron, one very little above the upper limit of the crack, another just beyond the lower limit also, and afterwards bandage as directed below. If preferred, these lines of separation may be made with a rasp, or fine drawing-knife; but the iron is best, as the seared line of distinction is stronger or more perfect, while the melted horn binds the edges together. But in case no moisture at all has appeared at the crack, then the insertion of any caustic matter is unnecessary, and the treatment for this kind of fissure is very simple.

The measures necessary for such an injury will be as follows: The horse being shod with a bar shoe, and the hoof either pared away in a line with the crack; or otherwise the shoe chambered, so that the horn immediately under the fissure may not be pressed on, proceed to bandage up the foot, so as to fulfil the following intentions. Bring the divided edges of the fissure together, and completely retain them there in such a manner as totally to exclude moisture from entering the opening. Whatever mode will answer these purposes best may be adopted. Some shoemaker's wax, melted and applied all over the hoof, may be bound round, while yet soft, with some three yards of tape, fastened with a hard knot, the knot again covered with wax. Then smoothe off to an even surface, and rub over with lard or grease. In all cases of simple "crack," pare away the divided edges so as to cut out the crack, and then with a hot iron draw a line above and below the place where the division has been.

Seedy-toe.—We are indebted to Mr. Mayhew for the most lucid and practical notice of this variety of sand-crack. It consists in a separation of the two layers of horn which compose the crust of the hoof. These layers have a separate origin. The outer, which is harder, darker, and thinner than the inner, is secreted from the coronet. The inner, which is softer, lighter in colour, and thicker, is built up

by the sensible laminæ, elsewhere described. When the foot is sound and the animal healthy, these two are one substance, and together make the "hoof" to which the shoe is nailed. When overwork, interrupted or disordered secretion, or unobserved injury affects the functions of the parts, the mischief begins, and the two kinds of horn begin to separate, as the human nail does from the "quick," as it is popularly termed. This beginning is always at the front; hence the term "seedy-toe." On gently tapping a foot with this affection, a peculiar hollow sound is perceived if the mischief is extensive; and upon removing the shoe a cavity between the two layers of horn is visible, up which a piece of soft wood may be passed to ascertain the depth of the lesion.

Treatment.—Put the horse in a loose airy box, and feed him with sound, dry food, and give a mild dose of cooling medicine. Then gradually cut away so much of the outer wall of the hoof, beginning at the toe, as is clearly detached from the inner. Examine from time to time, and cut away the crust as far as the detachment, should it not have been already completely removed. The new solid hoof will be found to be growing downwards from the coronet, and in a month or two rapidly forming and hardening. Rest and good feeding accelerate the secretion. The cure is in most cases complete.

FALSE QUARTER

is the absence of a portion of the outer crust of the hoof, and the sensible laminæ are consequently exposed at the point where this deficiency occurs; the spongy inner wall, spoken of in the last article, alone covering them—an insufficient protection, and liable to painful injury and rupture, when bleeding and fungous growths follow, the latter being squeezed painfully between the edges of the remaining hoof, and laming the sufferer. The treatment of sand-crack is to be followed; but as the hoof will not grow again in false quarter, owing to a portion of the secreting coronary band being absent entirely, there is no remedy but a palliative. This is found in the bar shoe, with a clip at the toe, the bearing of the foot being eased off at the place where the want of hoof is visible. Then place a piece of softened gutta-percha of the required thickness to fill up the hollow between the foot and the upper face of

the shoe, and mould it up the side of the injured part. This will keep on for several days, when it may be renewed. The part being thus relieved from pressure, the horse—at moderate labour, on fair ground—has long preserved his usefulness.

QUITTOR

is the serious consequence of a severe wound of the coronet. The injury, whether from an accidental tread, a side slip in frosty weather, or a blow upon the inside quarter, should be carefully and immediately attended to, because, if sand or gravel get into the wound, it is likely to produce those deep-seated ulcerations and sinuses which constitute the disease called "quittor."

Quittor may also proceed from any wound of the foot; and there is much difficulty in the matter proceeding from ulceration finding its way from under the hoof, which covers the foot with its various complicated parts. The consequence is, it accumulates under the hoof until it has increased to such an extent that it forces itself out in all directions, separating the little fleshy plates from their connection with the horny ones of the crust, or disuniting the fleshy sole from the horny one, and in extreme cases eats its way deeply into the internal parts of the foot, forming pipes or sinuses which run in all directions.

Treatment.—White's practice is as follows: The extent and direction of the sinuses must be ascertained with a probe. Then spread some powdered corrosive sublimate on pieces of paper smeared with lard; cut them into narrow slips, and twist them up to a point; insert them into the sinuses, and push them to the bottom with the probe. It often becomes necessary to remove the greater portion of the horny sole, and thereafter restore the healthy state of the tender surface beneath. When this has been effected, the horn will quickly be reproduced. But in cases where much of the sole has been removed, it will take at least six months to restore fully the deficient part, so that the horse may again be subjected to labour.

If it is found, when the probe is inserted into the fistulous openings on the coronet, that the direction of the sinuses is backward, it is probable a cure may be effected; but if the direction of the fistulæ be forward, and more

especially if the probe touches bone, the case is of great difficulty and doubt.

Mr. Spooner objects to White's "severe treatment" with caustics, and says there is danger of destroying the lateral cartilage and producing false quarter; in which we agree Mr. Newport, in the *Veterinarian*, reports cures by injecting a saturated solution of sulphate of zinc every twenty-four hours, poulticing also the foot. This is much less painful, and, we believe, quite as efficacious. In severe cases, setons from the lower parts of the sinuses and brought out at the heels, or between the bars and frog, are often serviceable.

NAVICULAR-JOINT DISEASE—"GROGGY" LAMENESS.

In stable phrase, the horse afflicted with what some modern veterinarians have called "navicularthrititis," is not inaptly described by the grotesque term "groggy." The learned compound term "navicularthrititis" is simply pedantic nonsense, and expresses what the disease is *not*.

The perforans tendon is inserted in the hinder part of the coffin-bone, and to reach that part it passes under the navicular-bone, which rests upon it, with the interposition of a small synovial sac, for facilitating the motion of the little bone upon the tendon. It is on the upper side only of this sac that the appearances of navicular disease are found after death. The sac above the navicular-bone, and between it and the lower bone of the pastern, is never found partaking in the disease.

The cause of the disorder, which is direct injury, is obvious. The immense weight of the animal has been placed with an *impetus* on some hard substance which has taken the foot at a disadvantage, and bruised the navicular-bone—the first solid substance receiving the extreme concussion. True, that the fleshy frog and the body of the dense perforans tendon lie between the face receiving the blow and the injured bone; but the fleshy frog is by nature highly organised, and adapted by its secretory powers to recover its tone, while the tendon, less organised, is wonderfully elastic and yielding in the living subject. The bone, then, the first unyielding substance, receives permanent injury from the concussion, forced downward as it is from above by the coronary bone. When the injury is

recent, the horse is found simply lame. The foot is examined, but it is generally quite cool. There is no apparent reason to be assigned for the lameness ; indeed, it often goes off, and the circumstance is forgotten. After a period of three to six months, during which unseen mischief has been going on, the lameness reappears. It is relieved, comes back again, and the horse is lame for life. As one foot is painful, greater stress is thrown upon the sound member, which is often injured in consequence ; and hence both feet are found, in so many instances, with disease of the navicular-joint.

We may observe that a sure sequel—we might rather say a symptom—of navicular disease is contraction. The foot is thrown out of use, or “saved by the animal”—indeed, he will be found “pointing” it in the stable ; hence the quarters draw inwards, the heels narrow, the frog hardens and diminishes in size and plumpness, the sole thickens, the hoof itself grows higher, and is marked by ridges. In short, “contraction” marks navicular disease.

Navicular disease is of an ulcerative tendency, and most seriously affects the adult and the aged animal. Mayhew remarks, which is confirmatory of the view we have already taken : “The foot in the first instance exhibits no heat, and in the after stages becomes no more than warm. Moreover, the consequences of this disease are absorption, which it takes years to effect—not deposition, which is accomplished in a few days. All internal structures of the foot lessen, till the hoof becomes visibly small and contracted ; for it is a law in nature that, in the living creature, the contents should govern the covering. Thus, the brain controls the skull ; the lungs regulate the chest, etc., etc.” With these views the treatment of Mr. Mayhew corresponds, and has our fullest assent.

Feed liberally on crushed oats and old beans. Soak the foot in hot water for one hour every night for fourteen days ; put tips on the hoofs, which part smear over with animal glycerine. Put the feet in a sponge-boot, and wrap the shank in flannel. Remember Professor Coleman’s “remedy”—a frog-pressure shoe—is the provocative of the disease, if not often the cause of its incurable aggravation. A leather sole, applied when the horse is shod, is of the utmost importance to his more permanent utility. Never use clay as a stopping, as the cold is apt to yet further

enfeeble parts already deficient in blood-stimulus. Neurotomy, in extreme cases, is resorted to. It affords in these cases the only chance of the horse being serviceable for a time. Of course, it does not cure the disorder; but it destroys sensibility. Hence, the animal often ruptures the tendon, or fractures the bone by a violent contact of the insensible foot with the ground. The animal must then be destroyed.

PUNCTURED SOLE, OR WOUNDED CRUST.

The sole is obviously very liable to wounds by nails, flints, pieces of glass, and the like. Frequently, too, but not so often as in former times, the laminæ are wounded by the nail in shoeing; or if the nail does not penetrate through the internal surface of the crust, it is driven so close to it that it presses upon the fleshy parts beneath, and causes irritation and inflammation, and at length ulceration. When a horse becomes suddenly lame, after the legs have been carefully examined, and no cause of lameness appears in them, the shoe should be taken off. In many cases the offending substance will be immediately detected; or the additional heat felt in some part of the foot will point out the seat of injury; or, if the crust be rapped with the hammer all round, the flinching of the horse will discover it; or pressure with the pincers will render it evident.

When the shoe is removed for this examination, the smith should never be permitted to wrench it off, but each nail should be drawn separately, and examined as it is drawn, when some moisture appearing upon one of them will not unfrequently reveal the spot at which matter has been thrown out. In the fore foot the injury will generally be found on the inner quarter, and on the hind feet near the toe, these being the thinnest parts of the fore and hind feet.

Sudden lameness, occurring within two or three days after the horse has been shod, will lead us to suspect that the smith has been in fault; yet no one who considers the thinness of the crust, and the difficulty of shoeing many feet, will blame him for sometimes pricking the horse. His fault will consist in concealing or denying that of which he will almost always be aware at the time of shoeing, from the flinching of the horse, or the dead sound, or the peculiar resistance that may be noticed in the driving of the nail.

When the seat of mischief is ascertained, the sole should be thinned round it; and, especially at the nail-hole or the puncture, it should be pared to the quick. The escape of some matter will now probably tell the nature of the injury and remove its consequences. If it be puncture of the sole by some nail, or any similar body picked up on the road, all that will be necessary is a little to enlarge the opening, and then to place on it a pledget of tow dipped in Friar's balsam, and over that a little common stopping. If there be much heat and lameness, a poultice should be applied.

The part of the sole wounded, and the depth of the wound, must be taken into consideration. A deep puncture towards the back part of the sole, penetrating even into the sensible frog, may not be productive of serious consequence. There is no great motion in the part, and there are no tendons or bones in danger. A puncture near the toe may not be followed by much injury. There is little motion in that part of the foot, and the internal sole covering the coffin-bone will soon heal. But a puncture about the centre of the sole may wound the flexor tendon where it is inserted into the coffin-bone, or may even penetrate the joint which unites the navicular-bone with the coffin-bone, or pierce through the tendon into the joint which it forms with the navicular-bone, and a degree of inflammation may ensue, which, if neglected, may be fatal. Many horses have been lost by the smallest puncture of the sole in these dangerous points. All the anatomical skill of the veterinarian should be called into requisition when he is examining the most trifling wound of the foot.

If the foot has been wounded by the wrong direction of a nail in shoeing, and the sole be well pared out over the part on the first appearance of lameness, little more will be necessary to be done. The opening must be somewhat enlarged, the Friar's balsam applied, and the shoe tacked on, with or without a poultice, according to the degree of lameness or heat, and on the following day all will often be well. It may, however, be prudent to keep the foot stopped for a few days. If the accident has been neglected, and matter begins to be formed, and to be pent up and to press on the neighbouring parts, the horse evidently suffers extreme pain, is sometimes scarcely able to put his foot to the ground, and much matter is poured out when the opening is enlarged, further precautions must be adopted. The fact

must be recollected that the living and dead horn will never unite, and every portion of the horny sole that has separated from the fleshy sole above must be removed. Much of the success of the treatment depends on this. No small strip or edge of separated horn must be suffered to press upon any part of the wound. The exposed fleshy sole must then be touched, but not too severely, with chloride (butyr) of antimony, some soft and dry tow placed over the part, the foot stopped, and a poultice placed over all if the inflammation seems to require it.

On the following day a thin pellicle of horn will frequently be found over a part, or the whole of the wound. This should be, yet very lightly, touched again with the caustic; but if there be an appearance of fungus sprouting from the exposed surface, the application of the butyr must be more severe, and the tow again placed over it so as to afford considerable, yet uniform pressure. Many days do not often elapse before the new horn covers the whole of the wound. In these extensive openings the Friar's balsam will not often be successful, but the cure must be effected by the judicious and never too severe use of the caustic. Bleeding at the toe, and physic, will be resorted to as useful auxiliaries when much inflammation arises.

In searching the foot to ascertain the existence of prick, there is often something very censurable in the carelessness with which the horn is cut away between the bottom of the crust and the sole, so as to leave little or no hold for the nails, while some months must elapse before the horn will grow down sufficiently far for the shoe to be securely fastened.

Youatt adds: "When a free opening has been made below, and matter has not broken out at the coronet, it will rarely be necessary to remove any portion of the horn at the quarters, although we may be able to ascertain by the use of the probe that the separation of the crust extends for a considerable space above the sole."

CORNS.

A corn in the human subject is a very different thing from that of the horse, although both arise from pressure. In the horse they are ordinarily seated in that part of the horny sole which is situated between the inner quarter and

the bars. When violent pressure is applied, even for a short time, it produces inflammation and extravasation from the secreting sole, the vessels of which becoming ruptured, a "sappy" or "bleeding" corn, called a "new corn," makes its appearance, presenting a blood-marked spot. The suppurating corn we will notice presently. The sensible sole thus injured, unless immediately relieved, and not again subjected to pressure until perfectly reinstated, takes on a permanently diseased state. Ever after, instead of perfect horn, a morbid secretion is deposited, and in some cases a semi-purulent matter, or pure pus, fills up the place, the inflamed vessels retaining an exquisite sensibility.

Corns are usually found upon the inside of the foot, because the inner wall and heel are weaker, and also bear a greater portion of weight than the outer. The coffin-bone not reaching to the heels is the reason why these structures are the seats of corn, for the coffin-bone is the active agent in its production. This bone is moved upwards and downwards at either end, as the weight rests upon one extremity or the other of its articular surface. It is the wings of the coffin-bone which cause corns. The descent of these wings squeezes the sensitive sole between them and the shoe in open feet, the shoe in this case being the passive agent; but in the contracted foot, the high, thick, hard, and unyielding sole becomes the passive agent, and between that and the wing of the coffin-bone the sensitive sole is bruised. Too little horn subjects the feet to corns, because a slight pressure will indent weak feet. The best shoe, suffered to remain on a foot too long, will produce a corn, or corns.

Neglecting to prepare the foot for the shoe is also a fruitful source of corns; for, in preparing a foot, this angular portion should be so pared as to remove it from contact with the iron, without weakening the horny covering of the sensible sole. Another common cause is the neglect of removing or renewing the shoes at proper intervals. When a shoe has been long worn, the growth of the hoof carries it forward, by which the parts originally opposed to the heels are carried beyond them, and now press on the sole, often becoming indented within the line of the crust, and producing a most injurious pressure. Sometimes, also, either from the original form of the shoes, or by long wear, they become loose, or "springy" at the heels, as smiths call it; in which case gravel is apt to make its way between

the shoe and foot, which, by the pressure of the heels during action, is indented into the substance of the horn; other gravel is received in the same manner, which presses still onward, until at last it harms the sensitive part of the sole. Extravasation of pure blood ensues, and forms a corn; or it may proceed to suppuration.

Corns, when new, are deeply seated, and of a bright crimson colour, requiring much digging with the drawing-knife to be found. When old they are black and near to the lower surface of the sole, which has then only to be scraped clean to perceive them. A corn, however, should be followed with the paring knife to its source in the sensitive part; for horses with old corns only go well when fresh shod and newly pared, and as soon as the portion of sole between the bars grows to a level with the surrounding horn, the sensible sole receives a fresh bruise, and lameness again appears.

Treatment. — When a corn of moderate extent first appears, it is not difficult by proper means to remove it completely; but when it has existed some time, the injured part becomes weakened, and the diseased action established. As soon, therefore, as it is discovered, the cure should be immediately attempted; first, by removing the shoe, then with a fine drawing-knife cutting away every portion of horn around, avoiding, however, wounding the sensitive sole underneath. If any contraction of the heels be present, the sole should be thinned till it yields to pressure of the thumb, and the blood appears like dew upon the surface. A unilateral shoe should be then applied, chambered opposite the weak part. Every third week remove the shoes, and pare the horn away from the seat of corn. In this way corns may be cured at their outset. But, having become habitual and permanent, a palliative treatment only can be pursued. In the first place, the pressure of the horn must be guarded against by a regular and frequent paring out of the sole; and if the hoof be very strong, and at all disposed to contract, the quarters also should be attended to, and not allowed to become too thick. We have also in very strong feet found the short shoe or tips sometimes of the greatest possible service. To a weak foot a chambered shoe is preferable.

When the weakness is very considerable, or the corn a very bad one, a bar shoe is the most proper support; more

particularly remembering, in these very aggravated cases, to remove occasionally all the surrounding horn likely to press on the injured part. Animals that could not wear tips, or bear a bar shoe upon the foot, have gone well when shod with leather, and with a shoe shortened at the quarter, which is the seat of corn. By regularly attending to this, horses, before useless, have been able to perform work with comfort to themselves and satisfaction to their owner. In slight cases of corn, the shoe proper to be used is one of rather more substance than common, with the web a little wider than usual, and its width equal throughout—that is, as wide at the heels as the toe; it should also extend rather farther back than it generally does, and present a perfectly level surface to the sole. This affords ease and protection. Future pressure must be avoided by keeping the seat of corns clear from offending horn.

Thrush (see *Diseases of the Hinder Feet*).—When thrush occurs in the fore feet, it may be considered indicative of navicular disease. By inserting a piece of tow in the suspected frog, the characteristic odour will be at once discovered.

CANKER.

Canker is distinguished by the growth of a fungoid substance, instead of healthy horn, over the surface of the soft parts of the sensitive frog and sole, exuding a thin and offensive discharge, which has the property of decomposing horn.

In mild cases every portion of diseased horn must be removed; otherwise the confinement of the fungus will not only exceedingly torture the horse, but, by the irritation which it produces, will prolong the disposition to throw out the unhealthy substance. The owner must not be terrified at the extent to which the foot is laid bare. Not the slightest good can be effected while there is any portion of fungus confined.

Having laid the unhealthy part perfectly open, the practitioner will consider what kind of surface it presents. If there is much fungus, he will probably resort to the knife. The fungus must be destroyed, and it cannot be done too soon, or with too unsparing a hand. A level surface being thus produced, the muriate of antimony may be lightly applied over the whole of it.

There is no disease for the relief of which there are more numerous remedies, all strongly recommended, than for canker. All and each of these will sometimes be successful; but on other occasions every one will fail. Solutions of the various caustics, the different acids, either diluted or of the full strength, powders in which the sulphates or chlorides are mingled with chalk, bark, or charcoal, and compounds of all kinds of things have their advocates. Nitric acid and tar is in great favour with some parties. Others employ verdigris, mixed with tar and treacle, or honey, to which is often added a portion of sugar of lead. In fact, the recipes are too numerous to be repeated; but they all have one and the same intention, namely, to act as a caustic and astringent, reducing the fungus, and stimulating the part to take on a healthy secretion.

No recipe can strictly be given in a case of this kind. The strength of the agent should be suited to the state of the disease; and in this particular no two cases will be alike. Let, therefore, the judgment be exercised; and at the same time let it be remembered that it is better to change the application than to continue its use when it appears to produce no marked or beneficial effect. A rapid succession of different agents employed in different forms will often do that which a pertinacious adherence to a favourite nostrum will too frequently fail to accomplish. When not judiciously employed, the more potent remedies for canker not only destroy the surface to which they are applied, but deeply and injuriously eat into the foot. The whole cankered surface being exposed, sprinkle it with the following powder:

Chloride of zinc	.	.	.	.	1 drachm.
Resin	.	.	.	.	4 ounces.

Or,

Chloride of lime	.	.	.	.	1 ounce.
Alum and resin	.	.	.	.	2 ounces.

Observe, neither of these powders will keep dry, and, therefore, must be made fresh for use.

A layer of lint and dry soft tow must be spread over the whole of the exposed surface, and made firmly and equally to press upon it by thin strips of spring-steel slid

under the shoe ; the horse must be put into a thoroughly dry box, from which the urine will immediately run off, and where no kind of moisture can reach the diseased part. A cankered foot, however, must not be dressed too frequently. The two or three first dressings may be given on succeeding days ; but, when the fungus has been in some degrees subdued, the bandages should only be removed every fourth day, or even once a week. Every time that the foot is exposed, it should be carefully examined in order to see that there is no portion of unhealthy horn ; for if there is, it must be immediately removed. The appearance of the exposed surface must also be inspected with great attention. Fresh fungus will require a fresh application of the powder, or possibly of the knife. Every little pellicle of skinny matter or soft and porous horn must also be pared away ; the healthy horn which has been secreted must be lightly run over with the knife, and then the butyr of antimony applied to the whole of the surface, the quantity used on the different portions of it varying with the progress towards a cure. After this the foot must be bound up as before.

A few days having passed—if the sprouting of the fungus has been quite checked, but yet the horn does not grow so healthily as could be wished—a pledget of tow may be dipped in the solution of the chloride of zinc, and spread over that portion of the foot, with more dry tow placed upon that. A sudden change will thus often be effected ; but should this not take place to the desired extent, try muriate of antimony, laid on with a brush.

The secret of the treatment of canker consists in the use of superficial caustics or stimulants ; pressure as firmly and as equably as it can be made ; and the careful avoidance of greasy applications or of moisture, either applied immediately to the foot, or suffered to penetrate to it through the dressing. The solution of chloride of zinc is an exception to this last rule, for it corrects the exudation from the foot, and stimulates the sensitive parts to the secretion of healthy horn, while the small quantity that need be used will be far from supplying constant moisture.

If wet can certainly be avoided, a horse with a cankered foot will, immediately after the first apparent growth of good horn, do much better at work than standing idle in the stable.

As canker, however, is a constitutional disease, local applications must not be singly depended upon. It is often connected with grease and with grossness of body. The condition of the horse must be considered, and measures adopted to improve the system.

CHAPTER XXVI

THE HORSE IN SICKNESS AND DISEASE

LAMENESSES—DISEASES AND INJURIES OF THE HOCK, LEGS, AND HINDER FEET.

I.—The Haunch.

THE STIFLE—STRAIN OF THE “ROUND-BONE”—DISLOCATION AND FRACTURE OF THE PATELLA—ANCHYLOSIS.

THE haunch consists of three bones: the ilium, which is joined to the spine, and, when projecting at its wings, produces the appearance called “ragged-hip”; the ischium, or hip-bone, behind and below the ilium, and which projects on each side under the tail; and the pubis, which unites the two last-named.

Fracture of the projecting part of the ilium, or haunch-bone, occasionally occurs. When it is of a simple kind, adhesive inflammation is set up, and the parts reunite; owing, however, to the action of the muscular fibres inserted in the loosened portion, the piece is sometimes drawn aside, and no surgical application can keep it in its proper position. In these cases the horse is what is called “let down in the hip.”

Although the “stifle,” in comparative anatomy, corresponds with the “knee” of the human subject, yet the different proportions of the bones of the horse cause the parts below it to be called the “thigh” instead of the “leg.”

As in old books of farriery “chest-founder” was the cloak for almost every obscure lameness in the fore limbs, so to a “strain of the round-bone,” or of the “stifle,” the lamenesses of the hinder limbs were conveniently referred. Violence, doubtless, occasionally injures the ligaments,

especially of the inside of the thigh. The deep situation of the part presents difficulty. Cold applications, where tumefaction and heat are present, followed by stimulant fomentations, a mild blister frequently repeated, and local bleeding, may be tried with good effect. What is called "lameness in the hip" proves, however, in most cases, on careful examination, to have the "hock" for its true seat.

Strain or Injury of the Ligaments of the Stifle or Patella is shown by the difficulty the horse feels in putting forward the hind leg; also by swelling and tenderness of the part.

The *Treatment* should consist of bleeding, either generally, or from the thigh; warm fomentations to the part, followed by cold lotions; and, if the lameness continue, the joint should be blistered, or setons inserted over it.

Dislocation, or Fracture, of the Patella.—This injury, also included under "lameness in the stifle," is often mistaken for "cramp," as farriers term it. The signs of a dislocated patella (knee-pan or whirl-bone) are the rigid thrust of the hind leg backwards, where it remains fixed; the head is erected, and the muscles quiver, while the pastern of the injured leg is bent upwards. An unusual swelling will be perceived at the outer and lower part of the buttock. By grasping the condyles (knobs) of the thigh-bone, the displacement of the patella can be felt, and the absence of the protuberant patella from its proper position, and its shift to the outer edge of the thigh are visible, though not so to the unskilful observer in coarse, fleshy horses.

The bone is always dislocated outwards; the form of the lower end of the femur, the strength of the ligaments, and the power of the muscles on the outward side, all prevent the bone from being dislocated inwards. It sometimes happens from weakness, when mere motion will be sufficient to reduce it. Nevertheless, in other instances, surgical aid is needed. In such cases proceed as follows: In the first place, have the leg drawn forward, if necessary, by means of a rope passed over a beam or rafter, and around the fetlock; then push violently against the dislocated bone, the position of which will be accurately told by the swelling it produces. It will generally fly back with some noise; and having got it in its proper situation, partially release the drawn-up leg, and have an assistant to hold the bone justly, by pushing against it for several hours; afterwards blister the part to render the animal averse to using it.

Fracture of the Patella is occasioned by a violent kick or blow. When the action of the tendons inserted into its surfaces disunites the fractured portions beyond the power of veterinary surgery to bring them together, the limb is useless, having lost the antagonism to undue flexion. It will be therefore of no avail to attempt a course of treatment.

In human surgery, the treatment of dislocations and fractures forms a most important branch of practice. In the horse, though these separations sometimes occurs, the immensity of the muscular resistance is such, and our surgical machinery at present is so little calculated to make resistance to the power thus exerted, that the subject may be briefly dismissed in such a treatise as the present.

ANCHYLOSIS (STIFF AND BENT JOINT).

When bony matter is deposited within or upon the cartilaginous extremities of bones, or upon the capsular and investing ligaments, so as totally to destroy the motion of a joint, it is called ankylosis, from the Greek word, *ankyloō*, to bend. This tendency is remarkably shown in the horse. Few of the joints of the animal escape ankylosis, as none of his bones are out of the ordinary reach of bony deposit. The joints of the spinal column, particularly of the dorsal and lumbar vertebræ, are frequently the seat of this affection, which seems to be occasioned by heavy weights. It is ankylosis which renders old horses stiff, and in some instances unwilling to lie down, or when down, averse to rising up again. When ankylosis of the knee or hock occurs, it usually follows injuries extending into the cavities of those important joints. The treatment is, of course, merely palliative, promoting absorption where possible by iodine and stimulants, and soothing pain, where present, by wet bandages, warm and cold.

II.—The Hock.

STRAIN OF THE LIGAMENTS—CURB—ENLARGEMENT OF THE HOCK—CAPPED HOCK—BOG-SPAVIN, BLOOD-SPAVIN, BONE-SPAVIN—THOROUGH-PIN.

Strain of the Ligaments of this important joint is by no means infrequent, and, as we have said before, the injury is supposed to be higher up. If taken early, the horse

rested, and the case treated on the principles before laid down, we shall generally succeed in effecting a cure. When inflammation can be detected at the hock, bleeding from the thigh or saphena vein will effect great relief.

By violent and long-continued exertion of the hock joint, so great is the consumption of synovia, in consequence of its peculiarly extensive motion, that the synovial membrane becomes at length incapable of supplying any more, and in this exhausted state is itself the subject of friction. The joint then becomes inflamed and ulcerated, and the lameness is "past all surgery."

CURB.

This, which is, in fact, extension of the ligaments of the hock, is usually brought on by some violence offered to the sheath of the perforans tendon, passing downwards at the back of the hock. It is often the effect of leaping, rearing, kicking, etc., and as such is usually sudden in its appearance. A kind of predisposition to curbs from conformation is apparent in horses with "sickle hocks." For the confirmation of this fact the public are indebted to the dissections and observations of Mr. W. Percivall, a writer whose diligence and research cannot be too highly commended. The lameness arising from curbs is not, in general, severe; occasionally, however, it may, and does prove considerable. We have already noticed under Ligaments the ringlike bands which, in the horse, tie down the tendons at the joints; these, by sudden extension, are injured, and hence a curb. An enlargement at the back of the hock, three or four inches from the point, is visible. Horses are found to "throw out" curbs after a severe race, an extraordinary leap, a fast gallop over heavy ground, or a sudden pull up.

The first object in attempting the cure is to abate inflammation; and this will be most readily accomplished by cold evaporating lotions frequently applied to the part. Equal portions of spirit of wine, water, and vinegar, will afford an excellent application. It will be almost impossible to keep a bandage on. If the heat and lameness are considerable, it will be prudent to physic the horse, and to bleed from the subcutaneous vein. Whether the injury be of the annular ligament, or the sheath of the tendon, more active means will be necessary to perfect the cure. Either a liquid

blister should be rubbed on the part, consisting of a vinous or turpentine tincture of cantharides, and this daily applied until some considerable swelling takes place, which should be allowed to subside, and then the liniment again resorted to ; or, which is the preferable plan, the hair should be cut off, and the part blistered as soon as the heat has been subdued. The blister should be repeated until the horse goes sound, and the swelling has disappeared. In severe cases it may be necessary to fire, but we cannot recommend the indiscriminate recourse to the hot iron in every case of curb, and we would uniformly give a fair trial to milder measures. If the iron be used, the strokes should be in straight lines.

There are few complaints in which absolute and long-continued rest is more requisite than in curb. An injury so serious leaves the parts very materially weakened, and, if the horse be soon put to work again, the lameness will frequently return. No horse that has had curbs should be put even to ordinary work in less than a month after the apparent cure, and even then he should very gradually resume his former habits.

A horse with a curb is manifestly unsound. A horse with the vestige of curb we should regard with much suspicion, or generally condemn as unsound ; for although the neighbouring parts may have accommodated themselves to the slight enlargement that remains, they are not in their natural situation, and have lost a portion of their natural strength. Some latent disposition to relapse may continue, which extraordinary exertion may rouse to action ; and, besides this, it should be remembered that curb is an hereditary complaint, and that there may be some constitutional weakness of these parts.

ENLARGEMENT OF THE HOCK JOINT—CAPPED HOCK.

The point of the hock is sometimes swelled, and a soft fluctuating tumour appears. This is an enlargement of one of the mucous bags which assist the motions of the os calcis, and surround the insertion of the tendons in the point of the hock. It is very unsightly, and sometimes becomes of a great size, particularly when it is occasioned by the practice of kicking ; in which case not only is there an immense increase of the secretion, but the integuments

also thicken, and accumulations take place about the capsule, which become of semi-cartilaginous consistency. It has been punctured occasionally with partial success, and the contents have been drawn off by setons; but the inflammation raised has endangered life. It has also been opened, and its contents, which, in the enlarged state, are partly fluid and partly semi-solid, evacuated; but after-irritation has endangered life, and no great advantage has been gained, for the incision made has united, and the sac has filled again. Hand-rubbing, almost continuously applied, has done more good with regard to diminishing the size than all the puncturing, blistering, and firing put together. The hand is also assisted by an india-rubber bandage made to fit the part, and worn at such times as the friction is stayed. When, however, opening the sac is insisted upon, it is best to dissect away the lining membrane, or to destroy it by the application of caustic.

It is exceedingly difficult to apply a bandage; and puncturing the tumour, or passing a seton through it, would be a most injudicious and dangerous practice. Blisters, repeated as long as may be necessary, are the usual means employed. Sometimes the tumour will disappear of itself; but at others it will attain a very large size, or will assume a callous structure that will bid defiance to all curative appliances.

BOG-SPAVIN—BLOOD-SPAVIN—BONE-SPAVIN.

Bog-Spavin is the commonest form among young horses, chiefly at the time of breaking.

Bog-spavin may be termed “wind-gall” of the hock. From over-exertion the bursæ mucosæ, which lubricate this complicated joint, become inflamed and enlarged; hence the subcutaneous vein which passes over these bags on the inside of the hock is compressed, and the blood interrupted in its flow: blood-spavin is thus produced, but bog-spavin may exist without it. Blood-spavin is a mere fanciful distinction, which may be dismissed without further comment.

Spavin and splint, in their most advanced stage, are the conversion of ligament into bone; yet, when spavin is found, though it may be small, no one can tell where it may stop. It is alarming to find them in young horses;

but in old animals they are often perfected, and will not only grow no bigger, but often decrease, and become partially absorbed. The bones locked together by exostosis never become loosed, though the swelling may disappear. As a general rule, we would say, when spavin does not produce lameness, let it alone. However unsightly, do not risk setting up a new action where the disease is quiescent.

The *Treatment* of bog-spavin may be briefly given in the words of Youatt, to which we will append the shrewd and lively observations of Mr. Mayhew: "Uniform pressure will sometimes cause the absorption of the fluid contained in cysts or bags like these, but in a joint of such extensive motion as the hock, it is difficult, or almost impossible, to confine the pressure on the precise spot where it is required, and could it be made to bear on the enlarged bag it would likewise press on the vein, and to a great degree hinder the passage of the blood, and increase the dilatation below the obstruction. The old and absurd method of passing a ligature above and below the enlarged portion of the vein, and then dissecting out the tumour, is not, in the advanced stage of veterinary science, practised by any surgeon who has a regard to his reputation. The only method of relief which holds out any promise, even of a temporary success, is by exciting a great deal of inflammation on the skin, and thus rousing the deeper-seated absorbents to carry away the fluid effused in the enlarged bag. Repeated blisters, then, will afford the fairest prospect of removing the tumour; or firing may be tried. But in the majority of cases the disease will bid defiance to all our means, or will return and baffle our hopes when we had seemed to have been accomplishing our object."

Mayhew's advice is worth the space we here give as a contrast of the "difference of doctors." He says: "The regular treatment is to purge, give diuretics, bleed, blister, rowel, seton, periosteotomy, neurotomy, fire, and punch. The bleeding may be great or small, local or general; the blister, mild or severe, applied over half the joint at a time, or rubbed in after the limb has been scored by the iron. Rowels and setons may also be simple, or they may be smeared with irritants, which are made of different strengths. Periosteotomy may be single, or may be made compound by the addition of a seton and a blister. Neurotomy is very unsatisfactory, and very often a most tedious

affair when employed to cure spavin. The fire may be down to the true skin ; it may be through the skin and on to the tumour ; or it may be inflicted by means of a blunt-pointed instrument, which, when heated, burns its way into the bone itself. The punch also admits of variety ; it may be with or without a blister ; it may be holes made in a living body, which holes are filled with a corroding paste. Or the operation may consist of the exposure of the bone, and cutting off the offending portion with a saw, or knocking away part of a breathing frame with a chisel and a mallet !

All these tortures have for centuries been inflicted ; they have been practised upon thousands of animals, only for men at this day to doubt whether the cruelty has been attended with the slightest service. Flesh, as capable of feeling as our own, has been cut, irritated, burnt, and punched for hundreds of years, and now, at the twelfth hour, such operations are not discarded, but their efficacy is mildly questioned.

Reader, if you have a horse which is lame from spavin, and your calculations tell you it will not pay to nurse the cripple, have it slaughtered. Do not consent to have it tortured for a chance ; do not sell it to the certainty of a terrible old age, and of immediate torment.

The cure for spavin is good food and rest—perfect rest—such rest or stagnation as a healthy horse submits to in the stable. This enjoined for months, with the occasional application of a mild blister, with the best of food to enable Nature to rectify man's abuse, will do more good, cost no more money, and occupy no more time than the devilries usually adopted, and very often almost without success. As an additional motive on the side of humanity, it may be stated that the horse suffers much more when disease is located in the hind, than when it is exhibited upon the fore legs. The ravages which in the first case would endanger the life, in the last would be borne with comparative tranquillity. The posterior parts of the animal seem to be endowed with exquisite sensibility ; yet, in spite of this, the so-called cure for spavin, and the boasted treatment of ages only consists in torturing the hocks of the animal.

While inflammation exists, apply poultices, and well rub the part with a mixture of belladonna and of opium ; one

ounce of each drug rubbed down with one ounce of water. Or place opium and camphor on the poultices ; or rub the enlargement with equal parts of chloroform and camphorated oil. The pain having subsided, and the heat being banished, apply with friction some of the following ointment. It may reduce the disease by promoting absorption ; at all events it will check further growth by rendering further deposit almost an impossibility :

Iodide of lead	.	.	.	.	1 ounce.
Simple ointment	.	.	.	.	8 ounces.
Mix."					

Bone-spavin is an exostosis, or deposit of bone on the inner side of the hock, which, when low, is called by the horse-dealer a "jack" ; it corresponds to splint in the fore leg, and originates at the head of the splint bone. The "high spavin" is the most mischievous, as it locks the joint, or renders the motion of the hock excruciatingly painful, the tendons having to move over the rough, bony deposit. The mode of lifting the hind leg in the trot will show spavin : the foot, instead of being freely raised from the ground, and slightly rotated outwards, drags, with the toe pointed stiffly forward, describing a much less curve in its passage through the air. The toe being thus brought forward, is worn blunt with the shoe. Look then at the horse's shoes (if worn), and see the horse when first brought out of the stable ; when warm, the stiffness, in less severe cases, will disappear. Horses with "sickle" or "cow-hocks," *i.e.*, with the great joints of the hinder limbs approaching each other like the knees of a knock-kneed man, are most liable to spavin, thorough-pin, and splint.

THOROUGH-PIN.

This is of the nature of bog-spavin, and allied to the "wind-galls" of the farrier. We have more than once mentioned the bursæ mucosæ as the seat of disease. There are two situations in which thorough-pin appears ; one rather above the point of the hock ; the other below it. Thorough-pin derives its name from the circumstance of its appearing as a round swelling on *both sides of the hock*, between the flexor of the tendons of the foot and the

extensor of the hock, and is a sign of heavy work, though often not accompanied by decided lameness. Thorough-pin, when not interfering with work, is not unsoundness, though a serious diminution in market value.

Thorough-pin and bog-spavin often exist together, and then the fluid can be pressed from one to the other, though not readily. These thorough-pins are generally produced by the sudden violent straightening of the limb; whilst bog-spavin is probably caused by its sudden bending.

Mr. W. Spooner says: "I have, however, known a troublesome and obstinate lameness produced from the upper thorough-pin, or perhaps rather from some strain of the tendon which attended it. It gave way, however, at length, to a seton placed over the part—not through it. I have also succeeded in removing a very large thorough-pin in the lower situation, in a high-class race-horse, by the long-continued application of equal parts of iodine and mercurial ointment, previously, however, stimulating the part with a mild liquid blister. The subject was a race-horse of great value; and the thorough-pin entirely disappeared in about ten weeks. In some cases the synovial fluid in the thorough-pin coagulates, and becomes organised and firm."

III.—The Hind Legs, Pasterns, and Fetlock Joint.

MALLENDERS AND SALLENDERS—SWELLED LEGS—GREASE—
WEED—SPRAIN OF THE FETLOCK JOINT—HALTER-CAST
—WIND-GALLS.

Mallenders and Sallenders.—On the inside and front of the hock, or a little below it, is often found a scurfy eruption called *Sallenders*; and a similar one on the back part of the knee bears the fantastic name of *Mallenders*—words of which the derivation is unknown. Their treatment is identical, and will be found under *Diseases of the Skin*.

SWELLED OR "FILLED" LEGS.

This common grievance of the stable is commonest among coarse and heavy horses, though the exactions of the animal's hard taskmaster, man, render the best-bred ones subject to the visitation. The hinder limbs, below the

hock, are the most affected, though the fore legs, below the knee, come in the same way to grief from undue exertion. Debility is also the constitutional cause of swelled legs. Some horses are liable to swellings in the limbs in the spring and fall of the year. This can be accounted for by the principal activity of the circulation being employed in preparing a fresh covering of hair at those periods, so that the vital influence in the extremities is somewhat diminished; and the same cause produces swellings in the legs.

Frequently, when a horse seems to be affected with no other disease, the hind legs will suddenly swell to a very great extent from the hock to the fetlock, in some instances even from the stifle downwards. This is accompanied by heat and tenderness of the skin, inducing lameness of a peculiar character. A quickened and hard pulse are usual concomitants of this seizure, with a considerable degree of fever. This complaint is acute inflammation of the cellular substance of the limbs, sudden in its attack, and violent in its degree, consequently attended with the secretion of fluid in the cellular tissue. Young horses, and those which are over-fed, with little exercise, are most liable to be thus attacked, and without having had previous inflammation.

Swelling of the legs is common to horses which are used for hunting and pleasure only. This, it will be seen, arises from irregularity in their habits; one day having a more than sufficient exercise, and probably standing for days or weeks in a stable, and only walked out or trotted for a short distance. In such cases the limbs should be well hand-rubbed to stimulate the vessels. Bandaging judiciously is advisable; but do not allow the groom to administer diuretics, as he says, to "cool the animal." The remedy is ruinous to the constitution, and aggravates the tendency to "filling."

The most troublesome, as well as the most frequent swelling in the limbs, is that caused by inactivity, from high feeding, and want of due exercise. One kind is accompanied by local or comparative debility, or loss of power in the part affected. Those horses which are over-fed, without exercise, are liable to swellings in the limbs from the capillary vessels having sent forth an over-supply of fluid to the extremities; and in consequence of the want of muscular exertion, and the perspiration naturally

connected with it, the fluids accumulate in the extremities, the vessels not having sufficient power to return them. The heart is thus acting upon an additional quantity of fluid; while, by the want of exercise, the limbs are deprived of that power by which the fluids are returned. Here "physic," a little soft food, exercise, and a mild diuretic are indicated, with active hand-rubbing.

Horses taken in from grass are often seized with swelling in the legs. This is occasioned by the difference of food, owing to its containing a greater proportion of nutriment, which increases the quantity of the blood, and the want of muscular and respiratory exertion necessary to carry it off by the skin. Exercise and a little opening medicine will effect a cure.

Treatment.—This, of course, must vary as the cause of the complaint varies. If from fatness of condition, bleed moderately; you will find the upper surface of the blood at first colourless, and a thick coat of buff afterwards. If the cause is debility, and the horse has had too much moisture in his food, bleeding is improper; and if a diuretic is given, follow it by a tonic. White recommends, if the swelling extend much above the hock, that we make some punctures with a lancet, which will produce great relief, particularly if the leg be afterwards fomented with warm water. Care, however, must be taken to rub the leg dry afterwards.

Place the animal in a good roomy box; give no hay. Sprinkle a handful of ground oak bark on each feed of oats, which should be damped to prevent the powder being lost. Walking exercise should be given twice or three times a day. It will be necessary to repeat the diuretic medicine every alternate day; and if the animal is debilitated, give in addition the following tonic:

Powdered ginger	.	.	.	.	2 drachms.
Sulphate of iron	.	.	.	.	3 drachms.

Either as a powder or in a ball.

If in the course of two days the leg is not so materially reduced in size as to lead us to infer its speedy restoration to a normal state, we may insert a rowel or seton in the thigh. If abscesses should form in the thigh or leg, we must take care to distinguish the case from farcy, to which it then bears some resemblance; but in the latter disease

the abscesses are usually smaller, and lie in the course of the absorbents, which are enlarged, whilst in oedema the abscesses are larger and more independent in their position. These abscesses, being opened, usually heal with little difficulty; but if the skin should slough, as it sometimes does, the cure is much more tedious. There is, however, a difference in this respect between the human and the equine subject; for whilst, in the former, the cure of ulcers is tedious and protracted, in the horse it is generally speedily accomplished.

GREASE.

This offensive disease is consequent on a morbid alteration of the quantity and quality of the fatty matter secreted by the sebaceous glands of the heels. Its sign is a white discharge from the skin of the heels, sometimes extending as high as nearly to the hock or knee. There is usually dropsical enlargement of the legs, the skin is red, and the hair staring, with pain and stiffness of the part. Horses with much hair on the leg are most subject to grease. Dr. Jenner supposed grease to be a specific disease, communicable by inoculation; but the idea has not been confirmed by experience.

In the simple form of grease, the stiffness and pain of the limb go off after a while; but if the disease is neglected, the discharge increases in quantity, the skin becomes thickened, and large excrescences—called from their shape “grapes”—cover the heels and back of the legs, while ulcerations form about the heels, and slough large portions away. Mayhew says, with proper indignation: “Grease is a filthy disorder, and a disgrace to every person concerned with the stable in which it prevails; it proves neglect in the proprietor, want of fitness or positive idleness in the groom, and culpable ignorance or the absence of the slightest moral courage in all people entering the doors of the stable. It is one of those disorders which it is easier to prevent than to cure. By an ordinary regard to cleanliness, and by an average attention to the necessities of the animal, this taint may be avoided; whenever it is witnessed, it not only argues the human being to whom the building belongs to be in the lowest stage of degradation, but it also testifies to

the sufferings endured by the poor creatures which are compelled to drag out life in such custody."

There is so much honest and just indignation here, that we forgive a little exaggeration. Grease is not always produced by mere neglect, though hand-rubbing, free ventilation, and cleanliness have almost banished it from our cavalry horses and well-regulated stables. Swelled legs, cracks, and grease are so much more common in winter, that grease has even been called a winter disease, and the "chilblain" of horses. Moisture is likewise favourable to the complaint, for it first produces a determination to the parts, and then, as a parent of cold, it weakens the already distended vessels. Grease sometimes follows injuries—as halter-casting.

The disease may become serious when it occurs under other circumstances favourable to its production, as in moist, cold, and particularly frosty or snowy weather; or when, from previous illness, a horse has been thrown out of condition; and, more than all, when such a case has been maltreated by the idleness or ignorance of those around, who, finding a swelled heel, immediately fly to urine balls, or purging balls, whereas a little local attention will cure the surfaces at once. Colour, likewise, as it marks debility, so it influences grease; thus, it has been remarked that white-legged and light-coloured horses generally are more liable to cracks, to grease, and to diseases of the feet, than others which are darker, or whose legs are black. After all, however, the grand origin of grease is—bad stable management. No matter of what breed, or how old the horse may be, the groom is to blame if the animal becomes greasy. In all well-regulated stables, the appearance of this loathsome disorder should be a signal for a change of attendants therein; for as the affection is now banished from the army, what earthly reason can be urged why it should be found in private stables?

Treatment.—In the older veterinary books, pages are devoted to this opprobrium of the stable. Our directions shall be simple. Clip off the hair; it can only heat the skin and retain the discharge. Wash the leg with warm water and curd soap. Then take a soft cloth saturated with the following lotion: animal glycerine, eight ounces; chloride of zinc, one ounce;

water, one gallon; and lay it on the hot skin. As soon as it is warm, change it for another left ready in the lotion, and persevere in this till the temperature is lowered. Two men should be employed, and four cloths, each as removed being thrown over a line to expose as large a surface as possible to the cooling action of the air. The chloride of zinc deodorises the discharge. When the cracks are ulcerated, a stronger lotion is to be used: of the permanganate of potash, one pint to a gallon of water; or, creosote, four ounces; chloride of zinc, two ounces; and a gallon of decoction of oak bark, cooled. A good powder to sprinkle grease is made thus: chloride of lime, one ounce, chalk, four ounces; powdered gall nuts, two ounces.

A drink of tincture of muriate of iron, one ounce; liquor arsenicalis, one ounce; and one quart of sound beer, may be administered. Blaine recommends, sound ale, one quart; carbonate of ammonia, half a drachm; extract of gentian, one ounce; tincture of capsicum, half a drachm. But we prefer the first, with the addition of the gentian if the animal is low and lymphatic.

It is, moreover, essentially necessary to the cure that all sprouting luxurious granulations should be reduced to the level of the surrounding integuments. Caustics only render the "grapes," as they are termed, of greater size. The mode best adapted for their removal is the knife. Cast the animal, having a flat piece of heated iron ready to pass over the surfaces, in case the hæmorrhage is profuse, as the horse having grease can but ill afford the loss of blood. Employ the strongest lotion into which chloride of zinc enters, and sprinkle the legs with either of the powders before mentioned, only rendering each weaker as the symptoms abate. In this manner a cure may be accomplished. Moderate exercise is of the utmost importance; indeed, the pain of grease goes off greatly during gentle motion of the parts. The disease, however, is apt to return. Should it display this disposition, discharge the groom, and procure one that is less sparing of his labour.

WEED.

This name is applied in the north country to a disease simulating œdema, or swelled legs, yet is quite distinct in its nature, and should be looked for. It consists of a

swelling of the thigh vein, extending sometimes from the hock up to the groin, very hot and tender. It is not mentioned by Percivall, Blaine, Mayhew, or in ordinary books, but is important, as its other symptoms are similar to ordinary swelled leg. When this affection of the vein is found, bleedings, fomentations, and mild purgatives, to lower the system, should be adopted.

SPRAIN OF THE FETLOCK JOINT.

This we have already noticed. When occurring in the hinder feet, it may be mistaken by a superficial observer for œdema. Put the limb in a bucket of hot water, bleed from the leg, then apply a cloth wetted with muriate of ammonia, one ounce; pyroligneous acid, two ounces; camphorated spirit, half an ounce; water, one quart: and if much lamed, apply a patten shoe, and give absolute rest—which is the reverse of the treatment for œdema.

An *Overshot Fetlock joint* sometimes renders a horse useless; he is only just able in this case to bring the toe to the ground. There is but one remedy—division of the flexor tendon. The divided ends recede, and the intervening space is filled with granulations.

HALTER-CAST.

The horse often injures himself by entangling his hind leg in the halter, and injuring his fetlock or his heel. Wrap the part in a large linseed poultice, and then apply an astringent paste; pipe-clay mixed with water, in which a piece of alum has been dissolved, is a cheap and useful application. When this is taken off, soften the cicatrix with a little Florence or palm oil.

WIND-GALLS.

The similarity of wind-galls to bog-spavin and thorough-pin—the two latter, however, being looked upon as hock diseases, and the former as affecting the fetlock joint and the sheath of the flexor tendons—renders detail almost unnecessary. They are almost always on the hind legs. There are two situations in which they usually appear, one on each side, and at an equal distance from the front

and back of the fetlock joint ; the other on each side of the flexor tendons. The former communicates with the fetlock joint itself ; the latter, which are larger and more frequent than the others, with the sheath of the flexor tendons. Thus connected, there must be considerable danger in opening them. Wind-galls are, therefore, neither more nor less than a distension of the synovial bags with synovia, and sometimes an extension of these bags by a rupture of their connections.

Blaine says : " In the treatment of wind-galls we must attend to three particulars : the removal of any diseased alteration they may have occasioned in the neighbouring parts ; the removal of their own distension ; and the prevention of its recurrence. Stimulating applications are the most likely to produce a removal of any coagulating deposit ; these are likewise still more proper, as they will tend to effect a removal of the contents of the wind-gall itself. The ' liquid blister ' will be very proper for this purpose. But simply to promote absorption of the contents of the wind-gall, continued pressure will be found the most convenient and efficacious remedy. A calico or a flannel roller may be prepared, of two, three, or four yards long, according to the part affected ; four inches is a proper width, and, from its superior elasticity, flannel is preferable to calico or linen. In addition to this, be furnished with one or two pads, stuffed with horse-hair or other elastic matter. Begin to apply the roller, and after having made a turn or two below the swelling, place the pad exactly upon the wind-gall—if in the pasterns, one should, of course, be placed over each side—continue the roller firmly and evenly over all, and fasten off. It, however, must not be forgotten that but little benefit can be expected unless this be continued as a constant application for a considerable time, during day and night, when not in exercise ; also, it must be remembered, that upon a repetition of the original cause (hard work), they are apt to return, the dilated capsule seldom regaining, with its original size, its original strength. It may be necessary here to warn the practitioner never to puncture a wind-gall. Most of those of great bulk and long continuance actually communicate with the cavity of the joints they surround, and the others of themselves excite similar effects with open joints, when they are laid open ; and even if no mischief followed, no good could result. The

cyst would be only momentarily emptied ; for its capacity would commonly remain the same, and it would almost immediately fill up again. Such an operation is, therefore, not only useless, but usually produces such inflammation as either destroys the horse, or ends in stiffness and ankylosis of the joint."

RUPTURE OF THE BACK SINEW.

This, which in racing parlance is called "breaking down," is a tearing asunder of the suspensory ligament, causing the fetlock to come to the ground. A patten shoe, rest, and a good constitution have got over this frightful lesion in valuable animals. The treatment will be found under *Fore Leg* and *Pasterns*.

IV.—The Hind Feet.

CHAPPED OR CRACKED HEELS—TREAD—INJURIES IN SHOEING.

Chapped or Cracked Heels are, like grease, penalties suffered by the poor horse for man's mismanagement or neglect. They are most prevalent in winter, and with horses that are entirely denuded of Nature's hairy covering (the "fet-lock") by fantastical, or oftener lazy, grooms, who fancy that because thoroughbreds have clean (not naked) legs, they must trim up their roadsters or harness horses equally fine. The skin does not get dirty under this small mat of hair ; and if masters would see that the servant rubs the horse's fetlocks dry, instead of drenching the poor brute's heels with water, and leaving them to chap in the wet and cold, prescriptions for chapped heels would be out of date. The milder remedies for *Grease* are resorted to in this disorder. Forbear exercise ; give bran mash ; and, should ulceration come on, the advice given under the head just referred to will need to be carried out.

If in lower bred horses—or, in better animals, from laziness or unpardonable neglect—an ulcerative process should have been set up, creosote or permanganate of potash must supersede the chloride of zinc for a time ; this must be mixed in proportions of half an ounce of creosote, or permanganate of potash, with two ounces

of animal glycerine to a quarter of a pint of water, and the state of the general health attended to. The system, however, must not be reduced, or depletory measures resorted to. A drink composed of the liquor arsenicalis half an ounce, tincture of muriate of iron an ounce, and water half a pint, should be given once a day. But never forget that leaving Nature's covering on the heels, merely—if the master is so fantastical as to require it—trimming off the ends of the fetlock, and diligent cleaning, first with cold water, then drying them thoroughly with more than two cloths, and lastly, diligent hand-rubbing, will prevent, in animals thus stripped and exposed, a return of chapped heels. Where there is a marked predisposition, from light colour and tender skin, to this and similar disorders, after the drying and rubbing already directed, smear the heels with glycerine, and stop the feet now and then, in cold weather, with corroborative stopping of tar and linseed meal wetted with chloride of zinc. We have found one of the convenient felt pads, slipped into the shoe, smeared with thin tar, after the washing with the white vitriol, a good preventive.

Mayhew pleads so eloquently against the practice of denuding the fetlocks of their ornament, that we are sure the reader will be pleased with his earnest appeal. He says: "The liability to disorder, induced by removal of the natural covering, exemplifies the folly of those practices which have lately become so very fashionable as, at the present time, to be almost universal. But there has always appeared to exist in the human mind a restless desire to improve the beauty of the horse. Now the tail has been docked; then the ears have been cut. A short space prior to these amendments the skin was tampered with to produce a star, as a white spot upon the forehead was termed. At the passing hour, almost every man who owns a horse must have the body clipped or singed. The length of hair is given in this climate as a necessary provision. Nature never forms anything without its use, though man, in his ignorance, may not always be able to comprehend her intention. Were the legs of horses allowed to retain that adornment which Nature gave, and were the parts not shorn of their shaggy beauty—were men not inclined to confound the different breeds of horses, and because the thoroughbred has clean legs, to imagine the cart horse

can be artificially made to display members equally fine—were masters more resolute in resisting the selfish suggestions of lazy grooms, who love to have the bushy heels clipped—were the stable-keeper not afraid of doing his duty, but would go down upon his knees and rub the fetlocks dry, instead of drenching them with water, and then leaving them to chap in moisture and in cold—were these things attended to, there is no reason why cracked heels should not speedily become a thing which has been, but no longer is.”

TREAD.

This is a wound inflicted on the coronet of the hinder foot by the act of crossing the feet when the animal is fatigued. In some cart horses it happens in coming down hill, the calkin of the one foot striking its fellow in front, and tearing away a portion of the coronet. In light fast horses a very similar injury is produced by the inner part of the hind foot striking the outer part of the fore coronet, when it is called “overreach.” Quittor or false quarter results from this tearing away of the part which nourishes the hoof. Cut away the separated pieces of flesh, and wash with chloride of zinc, and give the animal generous diet. If a slough takes place, dress as for ulceration, but do not poultice.

In the first instance, all cases of “tread” are to be considered as simple wounds, or rather as bruises, which, if extensive, have produced death in the surface and adjacent parts of the hurt; in which some inflammation must occur and be followed by slough of the edges thus injured. Sometimes the injury is so great as to cause sloughing of the extensor pedis tendon, and opening of the coffin-joint. In no instance, therefore, should an early application of irritating or caustic matters be made, by which more extensive inflammation and an increase of sloughing are produced. On the contrary, wash with water to remove dirt, etc., and if the wound be considerable, wrap up the foot in a poultice; if not, apply over it simply the mild lotion of chloride of zinc. Should the injury be slight, it may heal at once; but if not, sloughing and suppuration will occur. Under some circumstances, however, more extensive mischief will follow, when the case must be considered as “quittor,” or “open joint”; the treatment of which, by the opening of the

sinuses, and other curative or palliative measures, will be found under the proper heads.

INJURIES IN SHOEING.

These, arising from carelessness in nailing the shoe to the foot, or "pricking" him in the operation, from ill-shaped shoes, and the like, are considered in the chapter on *Shoeing*.

CHAPTER XXVII

THE HORSE IN SICKNESS AND DISEASE

CHLOROFORM—BLEEDING—ROWELS AND SFTONS —NICKING AND DOCKING—BLISTERING—POULTICING AND BANDAGING.

CHLOROFORM.

THIS important agent has been recently experimented upon with the horse with marked advantage in severe operations. In the interests of humanity, its more frequent use in cases where pain is concerned cannot be too strongly urged. The inhalation of the vapour of sulphuric ether, or of chloroform, is easily effected. A sponge wetted with chloroform being applied to the nostrils of a horse, the first effect is a certain degree of excitement; this is followed by insensibility, and the comatose state is found to continue during the severest applications of the knife and cautery. The stupor remains for some time after the operation is over. The utmost care must be taken that the vapour does not escape externally, and at the same time that the animal is not wholly deprived of atmospheric air. Castration and the extirpation of tumours have been effected under its influence. The horse, unlike man, being little subject to heart disease while in ordinary service, is a safer subject for the action of chloroform.

BLEEDING.

Bleeding is of two kinds: from a vein, called phlebotomy (Gr. *phleps*, a vein, *tomos*, section), or from an artery

(arteriotomy). Some bleedings (as at the toe-point, division of the vessels of the eye, etc.) combine both these operations. Blood-letting is further divided into "general, and "local" or "topical"; the first being intended to act on the constitution, the second, very near to the affected part, is intended to act more rapidly and directly than general bleeding, and to produce more effect with less abstraction of blood. Local bleeding is usually practised on the lesser branches of arteries or veins, as the temporal artery, the "plate" vein, the thigh vein.

Bleeding from the Jugular Vein.—The near-side in ordinary cases will be found most convenient for the fleam; the off-side for the lancet. Elevate the head so as to stretch the vein, which should then be pressed with the fingers of the left hand to stop the blood. It is advisable to blindfold the horse, or to turn away his head from that side from which blood is to be taken. The hair is smoothed along the course of the vein with the finger, which has been previously moistened; then with the third and little fingers of the left hand, in which the fleam must be held, sufficient pressure is applied to the vein to bring it completely into view, taking care, however, not to distend it too much, as the too-rounded surface is apt to roll or slip when the incision is about to be made. Never forget that immaculate cleanliness in lancet or fleam is a duty to neglect which is an atrocious crime. The particular part from which the blood is taken lies three to four inches below the union of the two branches of the jugular vein at the angle of the jaw. Farriers sometimes tie a cord round the neck to "raise the vein"; it is unnecessary and dangerous.

The fleam or lancet must be placed in a direct line with the course of the vein, and over the precise centre of the vein, with its point as close as possible to the skin, without touching the vein. A large-bladed fleam should always be preferred, which will make a greater opening, and thus facilitate the operation; besides, what is of greater importance, blood drawn speedily has far more effect on the system than double the quantity taken slowly; and the wound, although larger, will heal as fast as a smaller one. A slight pressure on the neck with the pail, or other vessel used while blood is taken, will be enough to cause the blood to flow sufficiently fast. Some persons introduce the finger into the mouth between the tushes and the grinders, when,

by gently moving it about, motion in the jaws is induced, and the stream of blood flows more rapidly from the action of the muscles surrounding the vein; but by keeping the fingers of the left hand firmly pressed on the vein, so as to obstruct the reflux of the blood, the stream will flow freely.

Some persons consider it unnecessary to pin up the orifice after bleeding. These bleedings may not renew, but we would advise the edges of the wound to be brought close together and kept in their place by a small pin being passed through the contiguous skin, with a little tow wrapped round the extremities of the pin, figure of eight fashion, so as to cover the entire wound. The pin should not be large, and care should be taken that no hairs are between the lips of the cut. In bringing the edges of the wound together, care should be taken not to draw the skin too much from the neck, otherwise blood will insinuate itself between the skin and the muscles, and cause a swelling which sometimes proves troublesome. The edges of the wound will heal in twenty-four hours, after which the pin may be withdrawn.

Local, or Topical Bleeding.—The leading operation in local bleeding is the puncture and division of *the temporal artery* in inflammation of the brain. These vessels do not supply the brain, it is true; but by opening them an artificial drain is made, through which much of the blood escapes that would otherwise have gone to the brain; besides which, a large quantity of blood is abstracted in a short time, when, perhaps, it would have been difficult to have bled from the neck at all, owing to the violence of the animal. The lancet is here vastly safer than the common fleam. The spot for its puncture, or division, is where the vessel leaves the parotid gland to curve upward and forward round the jaw, a little below its condyle. It affords much blood, and when the desired quantity is taken, divide the vessel; then the parts will recede, lessening by their own contractility, and the bleeding will stop.

Bleeding from the Palate.—This is a favourite spot with ignorant farriers, who recommend it in spasmodic colic and stomach staggers, or megrims. Fatal hæmorrhage has often resulted from the incomplete severance of the palatine artery. This artery and its vein run near each other on each side the roof of the mouth, so as to divide the inner surface of the hard palate into three nearly equal parts. The vein only should be divided by plunging a lancet across

the ridges, one inch inside the mouth, between the middle and second nippers. If the artery should be wounded, it must be *completely severed* so that its retraction may check the flow of blood. Bleeding from the palate, except under extraordinary circumstances, had better be avoided.

Bleeding from the Plate Vein.—This is resorted to in affections of the shoulder, fore leg, and foot, and sprain of the back sinews. The principal trunk of the *superficial brachial vein* ascends along the inner side of the radius, or arm-bone. If, when taking blood from these veins, a difficulty is found in making it flow, lift up the other fore leg, which will call the muscles of the punctured one into action, and force the blood in greater quantity. The *external thoracic* (plate vein) is best opened just as it emerges from behind the forearm, as it is here easily got at and readily pinned up.

Bleeding from the Thigh Vein.—The saphena is a prominent vein, continued from the inner part of the hock. The opposite leg to that to be operated on having been raised, the practitioner places himself in front of the thigh; grasping the hock with his left hand and pressing the vein with the side of the right, he punctures the vessel with his adjusted fleam. It is a troublesome vein to pin up.

Bleeding by the Toe.—This is practised in acute founder, or laminitis, in our opinion most mischievously. We have here, however, only to do with the mode of effecting it, should it be deemed necessary. A searcher, or drawing-knife is driven down between the crust and sole at their line of union; then, by puncturing the part with a lancet, an immense flow of blood will follow. If the blood should not flow with sufficient freedom, place the foot in warm water. The bleeding finished, cover the puncture with some tow and a little tar, and lightly tack on the shoe.

Some horses will bear to lose a much larger quantity than others, without our being well able to explain the reason of the difference. In a general way, the quantity an animal can afford to lose will depend on his condition at the time, his age, and on the nature of his disease, should there happen to be any present. Horses that work hard and live well will bear bleeding best; fat, bloated subjects, worst. Under acute inflammatory disease, especially of the brain, an animal will support the loss of a much larger quantity than if he were in health. Under

ordinary circumstances, a gallon is reckoned a moderate bleeding; under pressing disease, take three gallons; four have been taken. By way of a rough estimate, a gallon of blood may be reckoned equal to the loss of about a pint in man. Though under conditions of health, and forms of disease of no great consequence, we are in the habit of prescribing so many pounds or quarts of blood to be drawn, yet, when it becomes necessary to make a sensible impression on the system, our only safe and true guide as to quantity is a steady observance of the effects produced on the animal as the blood flows from its vessels.

ROWELS AND SETONS.

These are merely different modes of applying the principle of counter-irritation, thus drawing away the inflammation from the point attacked in the form of purulent issue. In this point of view, blisters, rowels, and setons are merely three methods to attain the same object, and their applicability is merely governed by circumstances; the blister being the most expeditious in acute cases, the rowel and seton more certain and permanent in chronic affections.

A *Rowel* can only be formed where the skin is loose, as in the chest. Having prepared a round piece of leather, with a hole in the centre, and about the size of a crown piece, wrapped with a skein of fine tow smeared with digestive ointment, we cut the skin with the rowelling scissors, and with the forefinger, or the "cornet" (a piece of crooked horn made for the purpose), or the handle of the improved scissors, separate the skin from the underlying tissue for the space of an inch. The circular leather is then introduced, the opening plugged up with tow, and in four or five days suppuration is established. The rowel should now be turned every twelve hours, the matter allowed to flow out, and the rowel be kept scrupulously cleansed every twenty-four hours. We do not think the digestive ointment, or any other application beyond the tow, at all necessary.

Setons are tapes, threads, or lamp-cottons passed under the skin by needles made for the purpose. Setons may be introduced in almost every part of the body: the side or front of the face, the poll, the throat, the neck, the back, the loins, the arms and feet are all available for this

counter-irritant, which can be made longer or shorter, deeper or shallower, as skill may dictate.

The skin should first be punctured with a lancet, which will much facilitate the subsequent insertion of the needle, whether the sharp or the blunt one be used. The latter will be found preferable in every situation where it is possible to make way with it through the subcutaneous tissue; in fact, the sharp-pointed needles are but seldom used. It would be idle to pretend to give any specific directions for using these needles; the operation can be learnt only from actual observation. The best material for setons is the coarse brown, or beggars' tape, as it is called, which will admit of being medicated (if thought necessary) in any manner the operator may fancy. The practitioner must not tie the ends of the seton, making a bow of it. From its liability to hitch against anything and be torn out with risk of laceration of the skin, this becomes objectionable, and even dangerous. The ends had better be made into knots, and left hanging out of the extremities of the wound.

When a seton is placed in a sinuous track for the purpose of inflaming, it is moved twice a day frequently, and moistened each time with some stimulant, as oil of turpentine, tincture of aloes and of benzoin. All setons require daily cleaning and moving. When they are required to act more quickly, the tape is infused in turpentine, with powdered cantharides, or small pieces of black hellebore are sewn within it. An old material composed of woollen flax, or cotton and hair, is also used instead of tape.

The frog seton recommended in navicular disease is to be inserted through the heel. The animal being secured by the twitch, an assistant holds up the foot. The needle is then plunged into the heel, and by a second push brought out at the cleft of the frog (previously thinned off for the purpose). Then draw the tape through and knot the ends. If the horse is down, insert the seton-needle from below upwards.

NICKING AND DOCKING.

These once prevalent, dangerous, and barbarous disfigurements having passed away—except in some dark parts of the sister island, where animals thus mutilated and deformed are still to be seen—we shall merely record our satisfaction that they are obsolete.

BLISTERING.

The preparation and ingredients of *Blisters* will be found in List of Medicines.

Blisters are very important aids in inflammatory affections as counter-irritants, derived from a law in the animal economy, that two inflammations seldom exist in the vicinity of each other. Therefore, when such an affection has taken place in any part, and we wish to remove it, we attempt to raise an artificial inflammation in the neighbourhood by means of blisters; which, if persevered in, destroy, or at least lessen, the original one. Occasionally, also, we blister the immediate inflamed part, with an intention to hasten the suppurative process by increasing the activity of the vessels—as in deep-seated abscesses, and also in those which attack glandular parts. We therefore employ blisters to hasten the maturation of the tumours in strangles.

In applying a blister, cut the hair as close as possible from the part, then hand-rub in the blistering compound from ten minutes to a quarter of an hour. In blistering the legs, take care the hinder part of the heel, under the fetlock joint, is rubbed with lard or melted suet, to prevent the action of any of the blister that may run down the leg; this will often prevent some troublesome sores forming from the blistering ointment falling on these sensitive parts. While a blister is acting, the litter should be removed from under the feet, or it will tickle the legs, and irritate; the head ought to be carefully secured for two days and nights, to oppose lying down, more especially to prevent the horse biting the blistered part.

On the third evening he may be permitted to repose; but a prevention should even then be continued, by means of what is called a cradle. (This apparatus may be bought at every turnery shop, or may be made of eight or ten pieces of round wood, an inch and a half in diameter, and two feet long; these are strung at each end on a rope, and fastened around the neck.) When it is intended to blister repeatedly, the effects of the first blister should have subsided before the second is applied, the scurf and scabs also be cleared away, and the part well washed with soap and water. In all cases, the third or fourth day after the application the part should be thoroughly painted over

by means of a long-haired brush (such as are in use with pastry-cooks to glaze their crusts) with lead liniment, which should be repeated every day; and when it is proposed to turn a horse out, it should never be done until the whole blistered surface is quite healed; otherwise, dirt, flies, etc., may prove hurtful. Some practitioners blister mildly one day, and on the next wash off the blistering matter, thereby saving loss of hair. But there is more of apparent than real good in this plan. If a blister be necessary, it requires all its activity.

POULTICING AND BANDAGING.

There is much comfort and relief to the animal in the neat-handed application of poultices and bandages. The cloth to be employed should be of stout but supple linen; Russia duck, or fine sailcloth, or, if you have it at hand, a piece of sheep-skin, or a chamois leather will do. You need not steep the cloth in any solution to make it water-tight. For the way to put on, so as to be really firm and serviceable, see Plate.

When spread out, the cloth will be of an irregular octagon shape, at each corner whereof is to be strongly sewed on a piece of broad tape for the purpose of fastening to the girth, or round the neck, and to a breasting of broad web, which is supported by another piece that passes over the withers, and which two should be previously fastened together by stitching the cross-piece ends upon the breasting. The two extremes of the bandage will be the fillet across the forehead, and the fastening at the girth; therefore, measure should be previously taken of the whole length proper for the individual patient, lest the tie, which would otherwise be necessary at the ears, might discommodate the animal and occasion uneasiness; on the other hand, the application would not be kept in its place properly.

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